620.5 v.25 (pt.1) 1226 8813a

AMERICAN MACHINIST

A PRACTICAL JOURNAL OF MACHINE CONSTRUCTION.

INDEX FOR VOLUME 25, 1902.

Illustrated articles are marked with an asterisk (*). Reviews of Books are marked with a dagger (†). Questions and answers have the serial number in parentheses.

A

PAGE

Ability, Business. 852
Abrasives—Crushed steel and steel emery. 1526
on Gardner disk grinder, Tests of. 1047
The action of. Wm. Taylor. 1706
Acceleration, A graphical determination of piston. J. N. Le Conte. 818
Accident, An elevator. See "Elevator."
among the girls, A belt. Wm. H. Brooks. 338
and the coroner's verdict. The Fourth avenue tunnel. 166, 306, 356
emergency outfit, A shop. 904
—Fireman's hand caught in pump. 1286
—Steam engine wreck in a paper mill. 501
—The blow-out of a mold. Tecumseh Swift. 912
Accidents—A guard for the jointer. C. Nell. *1022
Guarding machinery against. *1185
—Planer vs. buzz-saw. Ferd Wertheim. 766
"Racing" as a cause of flywheel. 1367
—Report of the New York State Factory Inspector for 1900. 213
Accumulator, Water sight gage for hydraulic. Bell Crank. *1718
Accounting, Cost. See "Cost."
Accuracy. See also "Good enough."
in boring pulleys and a 5-inch cylinder. See "Boring pulleys."
Acetylene and ether, Welding with. 1869
gas generator, A German. 771
light, Cost of the. 791
Acid to a pickling solution, Adding fresh. (9) 775
Addressing letters in a foreign language. 772
Esten & Dolan. 881
Adjusting heavy work on machine tools, Hydraulic device for. Henry Hess. *443
Adjustment of a caliper leg, Minute. M. H. Ball. *347
Adjustments for sliding fit and standard for repairing a surface grinder. A. H. Cleaves. *7
Admiral, A star—George W. Melville. 499
Adulteration of food products. 644
Advertisers and advertisements in the AMERICAN MACHINIST, The. 1660
Relation of a paper to its. 847
Advertising—Inquiry credits to the AMERICAN MACHINIST. Geo. Gorton Machine Co.'s. *743
Aerial Navigation. By Frederick Walker. †1462
Air blast for cooling lathe work, An. 443
blast used in Cincinnati Milling Machine Co.'s shop for clearing of chips, etc. 866
compressor, A power multiplying. Wm. S. Rowell. *1234
compressor cylinder, Effect of varying initial temperature in. (2) 69
compressor, Displacement efficiency of an. (7) 743
compressor of 1,000 horse-power, A King-Riedler. Allis-Chalmers Co.'s. *1474
compressor, The Imperial type of. Rand Drill Co.'s. *441
Economy due to reheating compressed. W. G. Edmondson and E. L. Walker. *1080
compressor, The D'Auria. E. R. Plaisted. 1377
compressor valve, Machining an—Arbor and ring gage. C. O. D. *1266

PAGE

Air, Cooling a tool by compressed. A. L. De Leeuw. *1456
cushion, Test of an elevator. 1511
for drill jig clamps, Compressed. L. O. Danse. 1523
in a barber shop and for cleaning a watch, Compressed. D. E. M. 808
Killing of a boy with compressed. 1806
oil service, Compressed. H. F. *211
pump driven by Morse chain, Condenser. *1401
ships under construction. 1319
to destroy explosiveness, Liquid. 1021
Alarm, Device for tempering with automatic. *528
Alcohol for light, heat and power. 278
motor wagons in Germany. 665
motors in Germany. 1684
motors in Paris, Exhibition of. 391
Algebra, A Graphic Method of Solving Certain Questions in Arithmetic and. By G. L. Vose. †1319
Alinement of a bar, For testing. W. E. Hunter. *638
Alining shafts. A. H. Cleaves. *7
Allen, Death of Miss Mabel. 1462
Allis-Chalmers Co. and the steel trust. 167
Co., General scheme of the new Milwaukee plant of the. *840
Co.'s use of perforated sheet metals. Joseph V. Woodworth. *1709
labor matters. 135, 423, 885
Allis engines in Glasgow, The. 965
Allowances for press fits. See "Fits."
—"Full" and "scant" boring: strip for cutting a base for planing. Gerald E. Flanagan. 880
Alloy, An alleged new nickel steel. 1075
of aluminum and antimony, Peculiar properties of an. 1285
of copper, A hard. 877
Alloys for car journals, etc. See "Railroad brass founding."
Alternating Current Machines. By Samuel Sheldon and Hobart Mason. †854
Altimeter 200 years old, Quadrant or. *620
Aluminum, A solder for. 1285
and antimony, Peculiar properties of an alloy of. 1285
button backs, Die for making. H. A. Hornich. *451
for sharpening cutlery. 1790
Machining. L. O. Danse. 1550
Thos. W. R. McCabe. 1659
vise jaws. Z. Y. X. 35
Welding. 1557
America's advantages, Some of—Military caste in Germany. 644
American bicycle manufacturers, An English comment on the methods of. 423
enterprise, The Grand Duke Boris on. 1575
Invaders, The. By F. A. McKenzie. †1516
AMERICAN MACHINIST, A diligent and appreciative reader of the. Elmer E. Sweeny. 195
MACHINIST, A quarter of a century of machine tool development as recorded in the pages of the—Some statistics. 1624
MACHINIST and education—The retrospect of a quarter-century of progress. R. H. Thurston. *1569
MACHINIST and the *Engineering News*, Concerning the selection of matter for publication in the. 820

PAGE

AMERICAN MACHINIST, by accident to the "Etruria," Delay of European edition of the. 566
MACHINIST, Changes and progress in the contents and make-up of the—"Letters from Practical Men," etc. 1577
MACHINIST—"Don't read, it don't pay." J. E. P. 196
MACHINIST, Filling the. Wilfrid J. Thompson. *1407
MACHINIST, George Gorton Machine Co.'s inquiry credits to the. *743
MACHINIST, Indexing the. See "Indexing."
MACHINIST, Money lost through not reading the. D. E. M. 957
MACHINIST readers, Choosing articles for the. J. C. Green. 198
MACHINIST, The advertisers and advertisements in the. 1660
MACHINIST, Reading the—The red ticket: worm gearing. 1153
MACHINIST subscription as an investment, An. J. L. Gard. 1085
MACHINIST, The first readers of the. 1593
MACHINIST, The—The invisible plan of progress. Tecumseh Swift. 1636
MACHINIST to be used in Chicago high schools, Drawings from. 1639
MACHINIST'S anniversary, Compliments to. 1838, 1870
American methods, A Manchester engineer on. 1459
methods through English eyes. 235
Ordnance Co., Notes at shops of. H. Goldsmith. *1397
School's Reference Library, Modern Engineering Practice. Ed. by F. W. Gunsaulus. †1773
Smelting & Refining Co. adopts profit sharing plan. 677
Society of Mechanical Engineers. See "Engineers," "Engineers'."
tool business in Great Britain, The. Charles Churchill. *1621
Tool Works Co., Some shop practice of the. H. Goldsmith. *789
triumphs—Machine mortising. 524
workmanship preferred. 524
workshop methods in steel construction. Henry Bridges Molesworth on. 1207
Americans can manage their own industrial enterprises, Whether. 675
"Americanism"—A German view of American industrial superiority. 435
Analogy, A pneumato-electric. 67
Analysis for cast iron wanted, Methods of. 812
Anarchist, Machinist arrested in France as a Paterson. 468
Anchors for crane chains; casting hoisting drums. G. E. Flanagan. *1508
C. F. Blake. *1791
Angle Boring machine set at an. 376
drawing, First or third. W. W. P. 1551
L. O. Danse. 1831
plate for boring work, Setting an. A. H. Cleaves. *7
Trisecting an—Newspaper discoveries. 167
Angles, Punching four holes at right. "Needle." *192
Spiral gears set at right. See "Gears."

PAGE

Angles without a protractor, Laying off. A. D. Williams. 165
Annealing and tempering steel at A. S. M. E. meeting, Discussion on. 1801
in the lead bath. Har. D. Ning. *631
steel in forging operations. H. F. J. Porter. 943
Water. W. Osborne. 261
Annex. The omnimeter. W. A. Warman. *522
Anniversary number, Compliments to our. 1838, 1870
Annuaire du Bureau des Longitudes. †742
Antimony, Peculiar properties of an alloy of aluminum and. 1285
Antiquities, Mechanical—A box of engineers' instruments 200 years old. E. P. Buffet. *616
Mechanical—The moonshine slitting mill at Old Boonton. E. P. Buffet. *406
Antwerp, A "labor exchange" in. 667
Anvil, How a blacksmith made an. L. O. Danse. 1419
Apprentice. See also "Boy," "Boys."
and his tools, The. Mr. Martin. 1411
boy, Advice to an—Minding one's own affairs. H. B. 1056, 1549
"Dutch." 1315
school, Commencement at Hoe's. 853
system for the navy, A machinist. Lieut. T. W. Kinkaid. 471
to learn a trade, How long it takes an—A good machine shop story. J. C. Green. 198
Apprentice's and the Dervishes' monkey wrench, The. B. M. *798
Capt. T. G. Tulloch. 1057
Apprentices, About—Pay, etc. J. L. Gard. 15
Defending and encouraging the. N. A. C. 633
Trade schools for. E. F. Scott. 993
Unfit. Cornell Ridderhof. 199
Arbitration and Reciprocity, International. By William F. King. †990
discussed by National Civic Federation, Compulsory. 1834
laws in Illinois and elsewhere, Discussion of. F. W. Job, Herman Justi and John Bates Clark. 1428, 1429
in Australia, Compulsory. 151
in the coal mining industry, Conciliation and. 35
strikes, National Civic Federation. 69, 100, 305, 451, 695
Arbitrator, The odd. H. M. Leland. 1402
Arbor and ring gage for machining an air compressor valve, Expanding. C. O. D. *1266
Centering an—A triangular hole. "Dibs." 353
John Graves 417
Francis W. Shaw. 1125
collars and nuts and cutters, True facing of. *869
driver for heavy work, A milling machine. Robt. A. Lachmann. *954, 1265
Cornell Ridderhof. *1120
E. S. Newton. 1123
A. Miller. *1762
press, A new. R. K. Le Blond Machine Co.'s. *501
Arbors, Centering eccentric. C. N. Hargraves. 849
Arches in locomotives, Brick. 413
Architects and Marine Engineers, Meeting of the Naval. 1558, 1661
Arctic, Rear Admiral Melville in the. 1836
Area, center of gravity, moment of inertia, etc.—Graphic integration. Karl G. Holst. *517
Arithmetic—A method for making exact computations. Geo. F. Summers. *1511
and Algebra, A Graphic Method of Solving Certain Questions in. By G. L. Vose. †1319
Machine Shop. F. H. Colvin and W. L. Cheney. †1773
of Electrical Measurements, The. By W. R. P. Hobbs. †774
Armature disks at General Electric works, Making. 1256
disks, Press with dies for punching and slitting. Joseph V. Woodworth. *1709
spiders, Milling machine for. Newton Machine Tool Works'. *757
Windings for Direct Current Dynamos. By E. Arnold. †774
Armor plate at Krupp hall of Dusseldorf Exposition. *1449
plate at the Krupp works, Making. *836
plate, New method of hardening. 1142
Armour Institute, Co-operation between American Correspondence School and. 964, 1379
Army school for instruction in heavy firearms, Proposed. 135
Arnold, Death of Benjamin. 711
Arsenal, Cost of making ordnance at Watervliet. 728

PAGE

Arsenal, View in gun shop of Watervliet. *612, *1043
Arsenic in brass casting. 525
Artistic die making. Joseph V. Woodworth. *696
The throb. 615
Asbestos for thin cores. Chas. A. Heald. 953
Asia, Interview with F. W. Horne on trade in Eastern. 886
Assembling and inspecting lathes; lathe tag; inspector's report; screw list for assembling gangs. H. Goldsmith. *789
Association of the Morse Twist Drill & Machine Co., Mechanics' Mutual Relief. 102
of Dayton, O., Report of Employers'. 695
The Machinists' Co-operative. 966
Assorter, Making a coin. J. A. Webster. *1137, 1140
Astigmatism, etc., Test object for. C. Ridderhoff. *472, 498
I. W. Payler. *625
Atomizer for shellacking blueprints. Mac. *878
Auer, Death of John. 599
Australia, Compulsory arbitration in. 151
Tariff and trusts in. 966
Austria, The clock and watch trade in. 1174
Austria-Hungary, Outlook for American machinery in. Henry L. Geissel. 1836
Automatic. 1029
machines and English forged bolts, American. William H. Booth. *1579
principle in machine tools, Progress of the. Census Bulletin. 1644
Automobile—A "Locomobile" burner press job. J. L. Lucas. *448
test, A useful. 1030
The latest. W. S. Rogers and Steamobile Co.'s. *413
Automobiles, Alleged fall in price of. 1206
in Germany, Alcohol. 665
—Self-Propelled Vehicles. By J. E. Homans. †774
Automobilism to excess. 852
Autotruck, A heavy. 1238
Average man, The. W. Osborne. 657
Axles, Lathe dog for car. Shartle Brothers Machine Co.'s. *998

B

Babbitt hammers and vise jaws, Molds for. H. T. G. *478
Ferd Wertheim. *1420
in oil holes. W. Osborne. *1648
ladles. Ferd. Wertheim. *1421
testing machine, Experience with a simple. E. S. Farwell. *1054
etc., A hand forge for melting. Buffalo Forge Co.'s. *411
Babbitting loose pulleys. (3) 215
Some points about. F. Wertheim. *234
E. R. Plaisted. *591
Babcock, Death of Nathan. 821
Backing belt, In defence of the. James Bell. 637
off milling cutters. Improved device for. Gus C. Henning's. *1340
off milling cutters, Lathe arrangement for. Billy Murphy. *672
Baggage, Patternmakers'. "Hobo." 344
C. Fremont. *633
Balance and air balance for elevating stock of blast furnaces, The water. B. W. T. *482
Balancing of Engines, The. By W. E. Dalby. †1062
Baldwin Locomotive Works, Shop and stockroom systems of the. H. Goldsmith. *1260
Locomotive Works' dinner. From address by Edward Atkinson at the. 757
Locomotive Works, Seventieth anniversary of the. 378
on economical living by workmen, Judge. Wm. H. Brooks. 640
Tecumseh Swift. *641
Ball bearing. See also "Bearing," "Bearings."
caliper for measuring thread pitches. Otto Eckett Yugen. *1280
handles, Jig for drilling and tapping. L. E. W. *20
B. M. *625
retainers, A machine for counting and feeding balls and inserting. Billy Murphy. *402
Tools for making a brass. H. B. McCabe. *1133
turning rest by Henry Maudslay, Lathe with. *582
Balls, American manufacture of ping pong. Joseph Misko. *1690
in the screw machine, Turning. Theodore. *737
round, The British secret of turning ping-pong. 771, 774
Small jig for drilling and counterboring. Ver. I. Nier. *557

PAGE

Balls, Turning governor. B. A. T. *479
Balloon at Berlin goes up 12 miles. 904
Balloons, Military. Graham H. Powell. 257
Baltimore & Ohio, Threatened strike against piece work on the. 999
Bamboo steel. 444
Bancroft, Testimonial to John Sellers. 247
Bandaging a sore finger end. F. P. Avery. *274
Bankruptcy, Town confesses. 135
Banquet, The John Fritz medal and. 1494, 1638, 1639, 1658, 1660, 1661, 1724
Bar, Expanding cutters for boring. Barker & Spink's. *390
for keyways, A test. I. W. Payler. *959
For testing the straightness of a. W. E. Hunter. *638
to hold twist drills and reamers on old lathe. J. Menegus. *1139
Bars, A self-acting feed gear for horizontal boring. C. Patterson. *376
J. A. G. Goulet. *881
Barber shop, Compressed air in a. D. E. M. 808
"Barber shop" tool arrangement, A. Salesman. 1274
Bark, Burning tan. W. Osborne. 438
E. J. S. 704
Bases for upright boilers, Casting. R. H. Palmer. *1
Baths for workmen, Shower. A. Bollinckx. *1769
Baxendale, Death of William J. 599
Beam bending machine. E. C. Thulin. *1505
compass clamp, A. G. A. Gerdtzen. *1025
dividers. M. W. Leech. *205
shearing machine at the Dusseldorf Exposition, Electro-hydraulic. Kalker Werkzeugmaschinen Fabrik's. *1446
Beams, Bending of—Notes on crane design. A. D. Williams. *845
by graphics, The deflection of. Willibald Trinks. 1798
castings, etc., Cold saw cutting-off machines for. Gustav Wagner's. *1012, 1206, *1218
Experiments on the flexure of—Discovery of new laws. Albert E. Guy. *54, *85, *118, *147
Mistakes of builders in cutting gaps in the edges of. Gerald E. Flanagan. 994
Bearing, A remarkable case of wear in a ball. Clayton L. Stanton. 531
S. B. 670
center for spinning lathe tailstock, Ball. S. B. *1274
drilling plate, A ball. C. Aliper. 15
lathe center, A ball. Carroll Ashley. *1121
metal testing machine, Experience with a simple. E. S. Farwell. *1054
on three points run true? Will a center. "Dibs." 353
John Graves. 417
Francis W. Shaw. 1125
—Turning a big journal. Edward De Hart. 1753
Bearings—A machine for counting and feeding balls and inserting ball retainers. Billy Murphy. *402
for heavy machinery, Ball. 54
for turrets, Krupp ball. *1620
on cranes and cars, Dissatisfaction with roller. S. P. Y. 851
Geo. L. Roby. 992
E. Arkland. 992
A. L. Bowen. 992
Hyatt Roller Bearing Co. 993
996
G. W. J. 1089
Thos. W. R. McCabe. 1089
See also "Bearings with end balls."
on drill presses, Ball and roller. Ferd. Wertheim. *1507
—Progress in lubricating and anti-friction devices. 1585
Roller. Robt. True. 1688
Tests of ball thrust. Thomas Gray. 1053
with end balls, Roller; Roller bearing tests. Ball Bearing Co. *1168, *1455
Geo. L. Roby. 1314
W. S. Rogers. 1374
Bed, A new English form of lathe. James Brockie's. *1515
plate on a small planer, Planing a large. James F. Willey. *1753
Beds of machine tools, Inserted V's for. J. J. Osgood's. *1063
Beer as a life saver—boiler explosion. Reinhold Betterman. *624
Bells, Molding locomotive. C. Vickers. *1746
Belt accident among the girls, A. Wm. H. Brooks. 338
dressing and the use of belts. Cherry Red. 1423
drives, Intricate. *760
J. L. Gard. *1085
Francis W. Shaw. *1517

PAGE

Belt, In defence of the backing. James Bell. 637
lacing, A sample of. W. A. Sylvester. *797
shifter, Cone. T. A. B. *481
shifter, International competition for a. 885
shifters, Right- or left-hand. See "Habits."
system of driving, Combined electric motor and multiple. F. H. Crafts'. *1019
Truing a. Geo. J. Meyer. 1119
with wood lagging, Endless. Walter Ferris. *945
Belts, Crossing—Example of incompetence. 33
Estimating length of driving. Jon. *1828
Resting. L. O. Danse. 20
vs. gear-driven feeds. S. T. Freeland. 732
Belting, A diagram for the solution of problems in. Frank B. Kleinhans. *988
Business correspondence about broken. 1259
Bench conveniences for pattern shop; position of vise. Vanderbilt. *806
Suggestions. 1267
work of a machinist with only one hand. C. W. Putnam. *465
Benches without shelves, Work. Old Bob. 1268
Bending a blank, Tools for. C. O. D. *734
machine, Automatic wire. C. D. King. *1088
machine, Beam. E. C. Thulin. *1505
Straightening and. Geo. J. Meyer. *764
See also "Straightening."
Bertram, Fiftieth wedding anniversary of John. 855
Besly & Co., Shop notes from the factory of. *1108
Bet, Getting a contract in Russia by a. 865
Bethlehem hammer, Scrapping the. See "Hammer."
works, The bonus system of rewarding labor at the. See "Bonus."
Bevel gears with spur gear cutters, Cutting. J. J. Stevens. 477
pinions, Boring jig for. J. P. Appleby. *1235
Beveling steel plates, A machine for. A. H. *1754
Bickford Drill & Tool Co., The administration of the premium plan at the works of the. *1189
Bicycle—A machine for counting and feeding balls and inserting ball retainers. Billy Murphy. *402
Book review paralleled by criticism of a. 553
Co., Control of American. 886
factory in Hartford closed, Columbia. 1431
fork heads, Profiling fixture for. C. D. King. *736
handle bar clamp in the punch press, Cold forging a. E. E. Minard. *1170
manufactures, An English comment on the methods of American. 423
parts, Case hardening. E. R. Markham. *10, 84
See also "Hardening."
used in course of work exempt from execution in Iowa. 1139
Billiard cue tip, Fastening a. Ver. I. Nier. *339
Binding—Filing the AMERICAN MACHINIST. Wilfrid J. Thompson. *1407
Blacking brass. 796
Blacksmith, A Philippine. *990
made an anvil, How a. L. O. Danse. 1419
shop, The clean—Does it pay? H. R. Looker. 1339
Blacksmith. 1491
Blacksmithing—Don'ts for steel workers. Horace Allen. 103
Blades, A reamer with adjustable. W. R. G. *494
Blakeslee, Death of Albert Judd. 502
Blanks for drawing shells, Sizing. See "Shells."
Block, A toolmaker's scratch. Morris W. Leech. *20
A vise. M. W. Leech. *205
and surface gage, A scratch. Theodore. *489
for the turret lathe, A multiple tool. Roger Haines. *951
for use in painting a smokestack, Rope. Oil Stone. *956
R. P. King. *1489
Blocks, Adjustable clamp. H. Goldsmith *1115
Adjustable parallel. C. B. *1139
Keyseat rule. Sawyer Tool Mfg. Co.'s. *565
—Supports for tool work. F. *1407
Blotting paper, A new. 333

PAGE

Blow-off valve, The Duro. Lunkenheimer Co.'s. *40
Blow-out of a mold. Tecumseh Swift. 912
Blower, A small portable hand. Buffalo Forge Co.'s. *821
Blowers and piping for forges. Wm. Sangster. *586
Blueprint apparatus from neglect of the oil can, Trouble with a. S. P. Y. 672
case. M. M. *1086
Blueprints, Atomizer for shellacking. Mac. *878
Marking changes on. F. W. Harris. 164
E. R. Plaisted. 380
Gerald E. Flanagan. 853
Waterproofing. 299, 1589
Blueprinting, A home discovered process resembling. W. H. S. 1457
frames. Draftsman. *1022
Apprentice. *1231
machine, Electric light. Pittsburgh Blueprint Co.'s. 423
machine. Eugene Dietzgen Co.'s. 1661
machine, The Federal electric. Spalding Print Paper Co.'s. *874
"Blue-stoning" for scratching, A kink in. A. H. 476
Bluing small steel parts, Case-hardening and. Theodore. *338
Board, A neat time card. Harry Ash. 1423
system, An English time. 667
Boat after John Fritz, Naming a. Chas. T. Porter. 1658, 1660
construction, Knockdown steam. 1013
J. W. M. 1089
Fireman's hand caught in pump on ferry. 1286
—The speed of a yacht. 1316
used as a shell button factory. 667
Boats in Germany, Exhibition of motor. 454, 699
The requirements of torpedo. Lieut. Gustav Kaemmerling. 1350
Bodmer and his machine tool inventions. 388
Howard A. Coombs. *369
Boiler, A rusted engine and a worthless. W. Osborne. 516
Accessories. American School of Correspondence. †101
at night in a hurry, Repairing a. W. Osborne. 759
explosions, The Penberthy and other. Duplex. 270
H. H. Lane. 380
fittings, A proposed standard for taper taps for. H. E. B. *763
grate, German inclined. Robert Grimshaw. *418
house in the Oil Country, A snug engine and. W. Osborne. *1647
injectors, A new principle in double tube. Francis Sticker's. *231
makers to ask for a nine-hour day, Boston railroad shop. 309
making, Rapid. 727
pipe questions, Some. Engineer. *1488
plates, Diagram for the thickness of. James A. Brown. *300
plates, Table for finding the thickness of. Geo. F. Summers. *92
progress in twenty-five years. Fred. R. Low. *1591
—Steam that would not drive. I. W. P. 1171
tube expander, A plastic pressure. Newall Engineering Co.'s. *298
used for high pressure, A low pressure. Reinhold Betterman. *624
Boilers—A grease separator. Duplex. *351
and smoke abolition. W. H. Booth. 1169
T. T. Parker. *1480
Casting bases for upright. R. H. Palmer. *1
Guessing at dimensions of. Machinist. 1722
of 1877 and to-day, Locomotive. O. H. Reynolds. *1627
—On the science of steam making. John C. Parker. *59
Our Dangerous Navy. By Wm. H. Booth. †678
Water Tube. By L. S. Robertson. †168
with tan bark, Firing. W. Osborne. 438
E. J. S. 704
Boilermakers' punches, Making dies for forging. Theodore. *806
Bolland, Death of Simpson. 1858
Bolt circles, An instrument for spacing. *1116
cutter, Portable hydraulic stay. Otto Philipp's. *1642
Bell Crank. 1790
heads, Fixture for milling. H. Goldsmith. *1747
header, Converting an old hand lever punch into a. R. W. J. Stewart. *450
headers, Overcrowding. Foreman. 1761
slots in machine tools. "Tramp." 486
thread cutting machine. Duplex. Webster & Perks Tool Co.'s. *268

PAGE

Bolt threading lathe. Early English. *581
used by an apprentice for a monkey wrench, A. B. M. *798
Capt. T. G. Tulloch. 1057
Bolts, A standard system of taper. H. E. B. *728
Dimensions of eye. Steelton. *1342
Erratum. 1382
in England, Use of forged large. William H. Booth. *1579
—Marking details 'to fit"; fine threads for large bolts; long elastic bolts. Gerald E. Flanagan. 1266
Bonus system of rewarding labor, The. W. A. Warman. 98, 304
D. Addie. 164
Sphinx. 241
E. J. Herbert. 259
F. A. Halsey. 292
Milwaukee. 380
C. H. Buckley. 382
L. O. Danse. 914
See also "Foreman, Splitting up a."
Book business, A new method in the. Derry-Collard Co.'s. 1426
Page of a special stores. Kenneth Falconer. *1649
systems, English time. 667
etc., under premium plan, Job data. James Rowan. *51
Clinton Alvord. *1165
Bookbinders' press after Otto Philipp's hydraulic principle, 200-ton. *1641
Bell Crank. 1790
Books, Making thumb indexes for reference. Gerald E. Flanagan. 854
Boonton, The Ogden iron works at Old. E. P. Buffet. *409
Borden, Death of Col. Thomas J. 1727
Bore with adjustable stop collar, Counter; fixture for boring headstocks and footstocks; fixture for boring milling machines. H. Goldsmith. *1397
Bores, Inserted tooth counter. S. B. *199
Boring a large hole, A cutter for. W. E. Bilger. *1413
a pulley hub, Re-. Mechanicus. *491
a pulley, Re-. Edward D. Hart. 1761
and other tools used on old lathe, Spherical. J. Menegus. *1139
and tapping machine. Baker Bros.' *658
and turning mills, Twenty-five years' progress in. Bement, Miles & Co.'s.; Wm. Sellers & Co.'s; Niles Tool Works Co.'s; Pond Machine Tool Co.'s; Betts Machine Co.'s. *1619
bar and fluted reamer, Pulley. Peter Chiampon. *1552
bar, Attaching a; setting a cutter; boring taper holes in line at one setting; centering work for boring; setting an angle face plate for boring work; using gage block. A. H. Cleaves. *7
bar, Expanding cutters for. Barker & Spink's. *390
bars, A self-acting feed gear for horizontal. C. Patterson. *376
J. A. G. Goulet. *881
brass rings, Special chuck for. Joseph V. Woodworth. *758
bushings in the lathe. V. W. X. *849
crank disks, Lathe arrangement for. Joseph L. Reid. *1267, 1652
cutters, Fastening. Beck. *1409
cylinders taper. W. Osborne. 900
Device for holding cylinders for. E. D. Becker's. *126
drilling and milling machine, A large horizontal. Niles Tool Works Co.'s. A. L. De Leeuw. *1785
facing and turning a brass bushing, Chucks for. Roger Haines. *350
fixture, Headstock. H. Goldsmith. *789
in an automatic turret lathe, True. *868
jig for bevel pinions. J. P. Appleby. *1235
jigs on the milling machine; boring machine chuck. H. Goldsmith. *1115
C. A. Hargraves. 1403
lathe, Trouble with a taper. Z. Y. X. 34
long pipes. Traveler. *16
machine, A large home-made horizontal spindle. A. L. Ide & Sons'. H. F. *1046
machine, Double-head horizontal. Binsse Machine Co.'s. *700
machine set at an angle. 376
machine work—Making an index plate. H. T. G. *953
machines and other tools, Suspended. Tecumseh Swift. 1127
machines by Henry Maudslay, Old. *583, *584
mill, Cutting threads in a. W. *957
mill, Gallery-Plate. Allis-Chalmers Co.'s. *695
mills with variable and constant speed motors and cone pulleys at Nordberg Mfg. Co.'s plant. *934

PAGE

Boring on drill press, A square drive for counter-. H. E. B. *1417
pulleys, Limits of accuracy in; Boring and accurately finishing a 5-inch dynamometer cylinder. Edwin H. Ahara, M. E. 447
Tecumseh Swift. 701, 1057
W. S. Leonard. *1170
Thickhead. 1315
rig, A spherical. P. E. Woodward. *27
rig for a pump, A. C. K. Witmer. *1764
rig for the turret machine, A novel. Roger Haines. *672
stuffing box followers. Tecumseh Swift. 961
taper holes, Tool for. H. Goldsmith. *1261
tool for the lathe, A convenient. D. E. MacCarthy. *954
tool holder, A. M. W. Leech. *485
tools for the patternmakers' lathe. John M. Richardson. *466
valve seats and guides in line. Cneroot. *1085
Boris on American enterprise, The Grand Duke. 1575
Bosses, Gang. Wm. Lodge. 642, 645
on castings, Molding. John M. Richardson. *1105
on patterns, Long. Francis W. Shaw. *635
Bottle, A non-spilling ink. A Reader. 133
holder, An ink. A. B. Christman's. *215
necks, Resilient tool for spinning or knurling metal around. *453
Bottling works, At the—Rigging up a bottle washer. W. Osborne. 54
Box, Combination dies for an aluminum soap. H. Robinson. *1542
Dies for compartment skeleton of a tin chemical. Joseph V. Woodworth. *187
face plate, The. M. W. Leech. *948
protective seals, Punch and die for making. Joseph V. Woodworth. *1192
tool an old fossil. The Knocker. 344
tool for roughing out. Peter Chiampon. *1552
tool, Taper turning. E. D. *1129
tools, Two types of needle. W. E. Callaghan. *487
Boxes, A set of dies for rectangular tin. Joseph V. Woodwortn. *1014
crates and trunks, Dies for corner fasteners, hinges, straps, etc., of. Joseph V. Woodworth. *900, *940, *1116, *1192, *1311
Tool for cutting oil grooves in long. Joe Spahn, Jr. *1418
Boy. See also "Apprentice," "Apprentices."
Advice to an apprentice—Minding one's own business. H. B. 1056, 1549
"Dutch." 1315
in the shop, Early experiences of a—Grinding twist drills; the speed lathe; grinding in pump valves with glass; making studs; an accident; technical literature. W. Osborne. 1587
Which is the best trade for my. D. E. M. 1405
W. Osborne. 1740
Boy's blunder, A—Shop honesty. W. Osborne. 409
wages, A. 521
Boys and excuses. W. Osborne. 1118
and men, Characteristics of. X. 202
—Defending and encouraging the apprentices. N. A. C. 633
in a drafting room. B. M. 634
in the shop, Various examples of. W. Osborne. 1477
"Boys," Prof. Sweet and his. A Cosmopolitan. 551
Boyer shop notes—A long spring mandrel; compressed air for jig clamps. L. O. Danse. 1523
Brace up a shop, How to. See "Shop."
Bracket casting, Criticism of special fixtures for machining a. H. E. Brown. 64
castings in pairs, Jig for drilling. *664
Dies for a sheet metal. Joseph V. Woodworth. *258
Jig for facing a gear. J. P. Appleby. *1757
Brain work, Hand and. W. Osborne. 1043
Tecumseh Swift. 1089
D. C. 1232
Gerald E. Flanagan. 1233
Brakes, Magnetic crane. Gerald E. Flanagan. *523
Brass, Blacking. 796
casting, Arsenic in. 525
founding, Railroad. C. Vickers. 1400, *1712, *1745
melting furnace, Improved. A. J. and E. H. Weatherhead's. *647
or bronze, To obtain a coppered surface on. A. H. 476
G. Schneider. 961
Brazing, A flux for. Frederick Pich's. 40

PAGE

Breach of confidence, An alleged. See "Confidence."
Breakages in a jobbing shop? Who shall pay for. 38
Bell Crank. 210
Breaker for use in charging storage batteries, Electrical circuit. Westinghouse Electric & Mfg. Co.'s. 1142
Breath testing—The respiration calorimeter. Frederick Hart's. *1297
Bribery in British workshops, Alleged. 1140
Brick arches in locomotives. 413
Bricklaying. By O. B. Maginnis. †534
machine, A. 1060
performances of an American contractor in England. 885
Bridge No. 2, Cables of the East River. 965
shop methods through English eyes, American. 235
The safety of the Brooklyn. 279
Bristle ends, Truing a roller of. Francis W. Shaw. *488
British navies, Engineers in th American and. 596
navy, Criticism of the. 1445
preference for American workmanship. 524
workshops, Alleged corruption in —Maintenance of industrial efficiency. 1140
Broach, An adjustable. A. P. Press. *29
Broaching machine for beveling steel plates. A. H. *1754
Bronze, Liquid for working phosphor. (5) 500
Brotherhood, Death of Peter. 1663
Brown, Death of W. Riley. 535
Brush cores, Jig for drilling circular. J. A. Webster. *1278
holder yoke, Milling jig for. C. Aliper. *348
of bristle ends, Truing a. Francis W. Shaw. *488
Buckle clasps, Dies for making. William Doran. *183
Buffalo Forge Co.'s annual meeting of salesmen. 213
Buffing, Holding work with a magnet for. George Drachus. *1407
Building and the hot sidewalk, The office. 1284
for workmen planned by Cincinnati companies. 1238
Novel construction of shop. Wheeler & Wilson Co.'s. 1479
Buildings, The construction of foundations for. Gerald E. Flanagan. 437
"Bump." The machinist. Uneedabrick. 1091
"Bumping" die, A double. A. P. Press. *480
Bureau of Standards, The National. 212
Burner press job, A locomobile. J. L. Lucas. *448
Burners—Liquid fuel combustion. See "Oil."
Bushing, Chucks for boring, facing and turning a brass. Roger Haines. *350
press, A 35-ton. Watson-Stillman Co.'s. *1539
Bushings for a mine hoisting plant, Making new drums and. B. W. T. *1135
for chucking work true, Use of various sized. Francis W. Shaw. 1125
Bushings in the lathe, Boring. V. W. X. *849
Jig. L. O. Danse. 1374
S. F. Arthur. *1863
Lapping or grinding. (12) 1286
Making small laps for drill jig. H. A. 804
N. A. C. *1413
while cheapening, Improving. L. O. Danse. *21
Business ability. 852
practice from Grant's Gear Book, Good. 335
Button, A gas engine started by pressing a. 556
assembling die, A. H. Hornick. *1520
backs, Die for making aluminum. H. A. Hornich. *451
blanks, Multiple die for. Mattack. *1721
factory, Boat used as a shell. 667
Gage for an accurately made. M. W. Leech. *950
Buttons, A blanking and forming die for nail heads or. W. E. Callaghan. *22
Device for locating jig. C. N. Hargraves. *849

C

Cabinet, A pattern letter. Dayton. *1127
Cables of the East River Bridge No. 2. 965
Calculating, A few graphical methods of. W. S. Fanning. *62
Edgar H. Berry. *302
the weight of castings. C. M. Schwerin. *1538
Calculations, A method for making exact. Geo. F. Summers. *1511
Electrical and Magnetic. By A. A. Atkinson. †854

PAGE

Calculations in crane design, Electric; solenoids, wiring, etc. A. D. Williams. See "Crane."
Calculator, New Idea wages. Carlton Mfg. Co. *1646
Calculators. See also "Computer," "Slide rule."
Calico, Turning. Francis W. Shaw. 488
Caliper, A registering. R. *804
An English micrometer. Humpage, Jaques & Pederson's. *872
and limit gages, New types of English. See "Gages."
as a hight gage, A vernier. San Francisco. *765
case, Improving the Starrett micrometer. W. A. Warman. *797
Depth gage attachment for micrometer. M. W. Leech. *481
for measuring thread pitches, Ball. Otto Eckett Yugen. *1280
leg, Minute adjustment of a. M. H. Ball. *347
Roughing gage or. A. Bollinckx. *1345
scheme, Micrometer—Doing away with a number of parts in a set. C. W. Putnam. *735
swindle, The foreman's. W. E. W. 494
used at Westinghouse works, Large outside; large inside gage. H. Goldsmith. *938
Calipers, A rapid transit nut for; evolution of the spring caliper. W. E. R. Markham. *909, *1396
Changeable points for. Walker Tool Co.'s. *774
Costliness of poor. W. Osborne. 1478
for tapers, Duplex and micrometer. See "Gages."
Improved "morphidite." Machinist. *1408
M. H. Ball. *1765
—Inclination and play of the— Press and slip fits. See "Fits."
Lost—Shop honesty. W. Osborne. 409
The Koopman. Ferd. Wertheim. *1748
The reading of vernier. *474
Calipering interchangeable racks and pinions. E. E. Winship. *25
Calorimeter, The respiration. Frederick Hart's. *1297
Cam, A set of tools for machining a. Joseph V. Woodworth. *412
Adjustable. Ver. L. Nier. *1250
cutting attachment for the milling machine, A. Brown & Sharpe Mfg. Co.'s. *977
for shaking a sieve, A too high speed. Peter H. Bullock. *1395
on the planer, Cutting a peculiar. J. F. Van Horne. *480
Cams in the lathe, Cutting. J. C. B. *177
Camera improvement for nearby objects, A. G. Schneider. 1716
Canadian industrial development. C. 1817
Cannon. See "Gun," "Guns."
Cap screw, Locking a. John Scott. 1344
Caps, Punching thick brass. Umbrella Mender. *346
with formed cutters, Milling brass. H. Goldsmith. *1397
Capital and labor, The relation of the public to. Charles Zeublin. 1430
Capitalization not inconsistent with good methods, Over. 1060
Car axles, Lathe dog for. Shartle Brothers Machine Co.'s. *998
coupler, Inventor of the Miller. Chas. W. Shartle. 763
equipped for traveling machine shop. 1351
frames, Machine for bending beams for small. E. C. Thulin. *1505
journal brasses, Casting. C. Vickers. 1400
Mr. Schwab and his private. "Pittsburgh." 563
Cars, Dissatisfaction with roller bearings on mine. See "Bearings."
Effects of a new rule about freight. 1092
Carborundum Co., Invitation from the. 165
Card, A shop time. E. H. Kreider. *958
board, A neat time. Harry Ash. *1423
file cost record used under premium plan at Blank Blank Engineering Works, Job and daily time tickets and. *908, *1076
J. E. B. *1165
File System—The Cost of Production. By C. J. Watts. †1031, 1093
file, etc., for tap orders, Tracer. C. H. Besly & Co.'s. *1112
under premium plan, Job progress. James Rowan. *49
Clinton Alvord. 1165
Cards and plates, Gates. S. H. Stupakoff. *410
Barr & Stroud's premium and material. *381
for details of drawings. Gerald E. Flanagan. 853

PAGE

Cards, Index. See also Index," "Indexing."
orders, tickets, etc., under premium plan at works of Bickford Drill & Tool Co. *1189
Tables printed on back of business. 1027
used in a new factory cost accounting system. Wilfred Bancroft. *1048
Carnegie Engineering Laboratory at Stevens Institute, Presentation of the—Mr. Carnegie's Epitaph. 246
W. D. Forbes. 279
on the cost of living and wages, Mr. 167
A Veteran Observer. 236
Carpenter work—Which is the best trade for my boy? D. E. M. 1405
Carriages, Planing lathe. H. L. Cam. *1768
recommended, Disappearing gun. 1382
Cartridge factory workmen, Recklessness of. S. F. Arthur. 1722
Case, Blueprint. M. M. *1086
for a steel square. Foreman. *764
for patternmaker's tool chest, Dress suit. Old Bob. 197
"Hobo." 344
for patternmakers' tools, Portable. C. Fremont. *633
hardening. See "Hardening."
Improving the Starrett micrometer. W. A. Warman. *797
Cases for cutters, saws, etc., Toolroom. H. Goldsmith. *1397
Cast iron. See "Iron."
Casting, castings. See "Founding," "Foundries," "Foundry"; "Mold," "Molding," etc.; "Pattern," "Patternmaking," etc.
Catalog file. Hill Publishing Co.'s *786
Bell Crank. 1201
Catalogs, Distribution of trade; obligations of receivers. 1042
S. A. 1518
Filing. G. F. D. *369
Standard trade. 1237
etc., Filing. R. H. Soule. 818
Cataloging small machine parts. L. P. Alford. *1364
Catechism, The Electrical. †1175
Celluloid embossing process in making ping pong balls. Joseph Misko. *1691
Cellulose—Cloth made of wood pulp. 525
Census figures on the iron and steel industries, and English analysis of them. 1543, 1599
report of progress in the machine tool industry during the decade 1890-1900. 1643
statistics of manufactures. 214
tabulating machine applied to cost accounting, The electrical. *1073
Center, Ball bearing lathe. Carroll Ashley. *1121
cleaner. A. B. Christman's. *1431
Combination hand dog and sub-. Willis G. Young's. *1237
finders. H. Goldsmith. *1260
for spinning lathe tailstock, Ball bearing. S. B. *1274
hole, A triangular. "Dibs." 353
John Graves. 417
Francis W. Shaw. 1125
of a milling machine, Truing the tail. A. B. Christman. *351
punches, Spacing. A. R. Bailey. *29
E. R. Plaisted. *32
Centers, Adjustable gage for lathe. E. A. Banning. *804
See also "Gages."
for the patternmaker's lathe. John M. Richardson. *466
Patternmaker. *1281
Cosmopolitan. *1762
of fillets and corners, A draftsman's tool for finding. Spartan. *850
Taper gage for lathe. W. B. Mehl. *1415
To prevent mixing up of lathe. F. W. T. *1278
Centering eccentric arbors. C. N. Hargraves. 849
long work. Z. X. 196
machine. Binghamton Machine Tool Works'. *876
machine, Duplex automatic. Railroad Supply Co.'s. *588
small spindles, Punch for. B. O. Butler. *1757
triple crank shafts, Jig for. C. W. Putnam. *805
work for boring. A. H. Cleaves. *7
Centrifugal force by the slide rule, Finding. E. J. Armstrong. 99
George F. Summers. *302
machines and their uses. Bartholomew Viola. 1800
Chain drive for Whitney hand milling machine, Renold. *1787
drives, Some examples of Renold—Fan, engine governor, etc. *225
for heavy duty, The Morse. *1400
for hoists on cranes, Use of; forms of grooves in drums. *1010
links, Case hardening. E. R. Markham. *1537

PAGE

Chain made by Standard Chain Co., Big. 566
of welded copper, A. 1509
sheave, Molding a. Foundry Foreman. *958
The proposed standard roller—Faulty and correct wheel constructions. J. O. Nixon. *13
C. E. Whitney. *133
Chains, Anchors for crane; casting hoisting drums. G. E. Flanagan. *1508
C. F. Blake. *1791
etc.—Belts vs. gear driven feeds. S. T. Freeland. 732
etc., Renold transmission. A Cosmopolitan. 665, 677
Charpy's method of testing metals. 121
Chart for compound indexing, Milling machine. 1374
Charts. See also "Diagram," "Diagrams."
for making exact computations. Geo. F. Summers. *1511
for paper and iron friction gearing. See "Gearing."
Chaser for cutting worms, The. T. A. B. *956
Chasers for sizing plugs, Adjusting. Isaac Morgan. *1136
Chattering cured, A case of. P. 1405
Chauffeur-Mecanicien, Manuel du. By Henry Matthieu. †1805
Cheap foundry supplies, Use of. P. R. Ramp. 1079
prices, American tools said to be offered abroad at. 534
work not the best to hold customers. W. Osborne. 691
Cheapening, Improving bushings while. L. O. Danse. *21
Check systems, Some English time. 667
Chest with combination drawer pulls, A patternmaker's tool. Tool Chest. *1270
Chests, Dress suit cases and patternmakers' tool. Old Bob. 197
"Hobo." 344
C. Fremont. *633
Chicago shops, Labor situation in. J. B. 646
Child, Death of Charles Tripler. 966
Child labor at glass works in New Jersey. 644
labor in Georgia cotton mills. 1285
Chilling plate press, A. J. W. *911
Chimney, A perpetual motion. 534
See also "Smoke stack."
China, American versus English machinery in. 443
Bamboo steel in. 444
Some guns from. *791
Chinese, A machinist who learned. M. H. W. 1755
Chip pans for the lathe. T. H. Miller. *342
"Tramp." *633
Chips made on Bickford drills. *1044
Sharp tools and thin. J. C. Green. 495
Chisel, Tempering a. Easy. 1377
Christmas presents—A liberal shop proprietor. E. J. B. 193
to all, A merry. 1868
Chuck, A fixture for the magnetic. R. E. F. *1420
A new drill. Westcott Chuck Co.'s. *1870
A new drill and lathe. Seneca Falls Mfg. Co.'s. *1693
A push-in. G. Schneider. *1768
About an "automatic." 1029
A sling for a lathe. T. H. Miller. 342
and tools for trimming shells. Barney. *1122
at Westinghouse works, Hand wheel. H. Goldsmith. *939
Boring machine. H. Goldsmith. *1116
Crane for handling a. W. A. Warman. *191
Drill. Frederic P. Gates'. *597
for brass rings, Special. Joseph V. Woodworth. *758
for holding shafts in milling keyways. C. M. *1271
for holding special screw when rounding head. H. B. McCabe. *1275
for small twist drills, A. Toolroom. 1281
for small work, A lathe. G. L. E. *1770
for threading brass rings. Joseph V. Woodworth. *2
for transferring work in making subpress dies. M. W. Leech. *27
for turret lathe, Rod. C. H. Besly & Co.'s. *1112
of Alfred Herbert, Ltd.'s magazine screw machine. *1197
Inside gripping spring. C. D. King. *1756
of Railroad Supply Co.'s duplex automatic centering machine. *588
or guide for back end of hollow spindle, A. W. A. Bright. *1281
Oval. Gould & Eberhardt's. 693
Piston-ring grinding machine with magnetic. J. E. Reinecker's. *1788
work true, To. J. E. P. 347
Francis W. Shaw. 1125

PAGE

Chuck wrench, Strengthening the. B. *483
Chucks and face plates and wax for lathe work, Wooden. P. A. G. *415
Cast iron step. Wheeler. *1409
for boring, facing and turning a brass bushing. Roger Haines. *350
Interchangeable. Machinist. *1403
To prevent drills from slipping in. James D. Anderson. *639
etc., A lathe with its—Square-ended threads on spindle. H. O. Bow. *1268
Chucking device, A spinning lathe. Andrew C. Witzel's. *1227
fixture for narrow collars, lock nuts, etc. Francis W. Shaw. *1124
small screws. John Scott. 1344
Cincinnati and the railroads. 1692
during the past twenty-five years, The machine tool progress of. 1622, 1726
manufacturers on the metric system, Action of the. See "Metric."
Milling machine Co., Some points in shop practice of the. See "Shop practice."
Milling Machine Co.'s policy as to sending catalogs. 1042
S. A. 1518
Circle, Diving the. J. P. Appleby. *1275
Joshua Rose, Jr. *1456
Drawing the isometric. *444
to enclose a given number of smaller circles, A. Robert H. Rogers. 1314
Westerner. *1521
Circles, An instrument for spacing bolt. *1116
Circuit breaker for use in charging storage batteries. Westinghouse Electric & Mfg. Co.'s. 1142
Circular planing. See "Planing."
shearing with a punch. W. *1277
Civic Federation, Annual meeting of the National—Discussion of labor organization, compulsory arbitration, premium plan, shorter work-day, etc. 1834
Federation, The National. 69, 100, 305, 451, 695
Improvement, The American League of. 278
Clamp, A beam compass. G. A. Gerdtzen. *1025
A universally adjustable rod. W. *909
blocks, Adjustable. H. Goldsmith. *1115
for a straight-edge, A right angle. I. W. Payler. *339
for the milling machine, A micrometer. F. W. Unger. *952
Gardner double disk grinder finishing edges of parallel. *1109
hubs. Tim Handyside. *883
C. L. B. *1058
Improved patternmaker's. Hans Jorgensen's. *40
screws, For tightening patternmakers'. B. M. 955, 1132
Clamps, Compressed air for drill jigs. L. O. Danse. 1523
Core box hooks and. C. Nell. 1136
Clamping screw, Drill jig with novel. D. E. MacCarthy. *738
too tight. W. Osborne. 900
Class, The methods of conducting a shop drawing. Eugene C. Peck. *810
Classification of patterns, A standard. 67
Clean blacksmith shop, The—Does it pay? H. R. Looker. 1339
Blacksmith. 1491
Cleaner, Center. A. B. Christman's. *1431
Cleaning and soldering metals, For. 1684
Clearance, Door used to cover hole made in giving. 6
Cleveland, Smoke abatement in. Prof. C. H. Benjamin. *131, 134
Clips and stops for crane runways, Rail. F. D. Buffum. *241
E. R. Plaisted. *591
Clock and watch trade in Austria, The. 1174
gears, Punching brass; Movable stripping devices. Wm. Doran. *1044
Thos. W. R. McCabe. 1659
pinions, Information wanted about hardening and tempering. 39
Clocks, Accurate time keeping by. 402
Cloth for bandaging a sore finger end, Cutting. F. P. Avery. *274
made of wood pulp. 525
Turning. Francis W. Shaw. 488
Clothing, Hanging workmen's. L. O. Danse. 20
H. Goldsmith. 1397
Clutch, A new friction. Casner Pulley Co.'s. *1062
A variable speed friction. William A. Wood's. *1683
pulley sleeves from neglect of the oil can, Trouble with. S. P. Y. 672
etc.—New variable speed countershaft. Lodge & Shipley Machine Tool Co.'s. *414, *1188
Clutches reversible and otherwise, Silent roller ratchet. W. *910
James A. Horton. *1026

PAGE

Coachman of the "Skylark," The. (Poetry) 1233
Coal and natural gas, Relative cost of. 693
and power, Folderol about. 1204
combustion, The process of. J. W. Shepherd. 1547
Germany becoming dependent on American. 423
mining and hauling, Two railroads agree on. 1351
mining industry, Conciliation and arbitration in the. 35
mining, The premium plan as applied to. F. A. Halsey. 296
F. Wilton James. 417
monopolies, Meat riots and. 741
monopoly, The anthracite. 1524
—Ownership of public necessities. 1546
presidents refuse to meet miners, Anthracite. 391
smoke. See "Smoke."
storage plant of the Lowell Gas Light Co., Steel and concrete. Franklin M. Bowman. 819
supply, Forests can compensate for failure of. 1200
teamsters boycott fuel gas. 177
Coats, Hanging. See "Clothing."
Cock for engines, Improved indicator. Albert K. Mansfield. 817
Taking out broken locomotive cylinder. W. Osborne. 1020
Coil threading machine, Pipe. Reliance Machine & Tool Co.'s. 103
Coiling springs. See "Spring," "Springs."
Coin assorter, Making a. J. A. Webster. *1137, 1140
Cold on power required for a line shaft, Effects of. Transmission. 445, *762
J. H. Dunbar. 592
Storage and Ice Making, Refrigeration. By A. J. Wallis-Taylor. †854
weather, Out of door jobs in. W. Osborne. 1020
Collar, Counterbore with adjustable stop. H. Goldsmith. *1397
for removing arbors, A. See "Drivers for heavy work."
for shafting, A safety. National Tool & Machine Co.'s. *215
for milling machine arbors, Micrometrically adjustable. C. W. Coburn. *625
Collars in the power press, keyseating. *758
Special dead center lathe for facing milling machine arbor. Cincinnati Milling Machine Co.'s. *869
etc., An indexing fixture for machining clutch. Carroll Ashley. *1419
etc., Chucking fixture for lock nuts, narrow. Francis W. Shaw. *1124
etc., Cutting keyways in small. W. R. G. *1762
Colleges. See "School," "Schools."
Collet, Holding straight shank cutters in a. Theodore. *30
Collets, Cast iron draw-back. Wheeler. *1409
Making spring. Joseph V. Woodworth. *3
Color in tempering. L. O. Danse. 1263
Alois Platt. *1830
Coloring of metal, Galvanic. 121
Columbia bicycle factory in Hartford closed. 1431
University. Lord Kelvin at. 645
Columns, Mistakes of builders in cutting gaps in. Gerald E. Flanagan. 994
Turning granite—Carrying the weight in the lathe. Cornell Ridderhof. *14
Combination cone pattern, A. J. B. G. *28
President Roosevelt on. 1774
tools for heavy work and assembling, Progress in. 1584
Combinations upon wages, Effect of. 533
Combustion, The process of coal. J. W. Shepherd. 1547
Commerce, The new Department of Manufactures and. 421, 594, 597, 997, 1351
Commission from England to study industrial questions. 1526
Commissioner of Patents, Report of the. A. F. Tennille. 309
Commutator bar gage, Universal. A Tool Maker. *271
Commutators—Sawing copper. A Tool Maker. *1125
Compass clamp, A beam. G. A. Gerdtzen. *1025
Competence and ease. Wm. H. Brooks. 32
Competition for a belt shifter. International. 885
German law against unfair. 1537
Competitor, Having a good. M. L. Saley. 1695
Compressed air. See "Air."
Compressor, Air. See "Air Compressor."
Computations, A method for making exact. Geo. F. Summers. *1511

PAGE

Computer, Cox's high pressure gas and air. 1515
New Idea wages. Carlton Mfg. Co.'s. *1646
Computors. See also "Slide rule."
Conciliation and abritration in the coal mining industry. 35
Concrete foundations for buildings. Gerald E. Flanagan. 437
Concussion on steel, Effects of. 403
Condenser ferrules, etc., Automatic screw machine for making. Alfred Herbert, Ltd.'s. *1195
Condensers, Surface allowed in. 762
Conduits at the Nordberg Mfg. Co.'s plant, Electrical. *931
Cone pattern, A combination. J. B. G. pulley. See "Pulley," "Pulleys."
Confidence, An alleged breach of. Perseverance. 561
H. Danforth. 668
Tecumseh Swift. 671
S. H. B. 732
C. A. Reful. 732
Francis W. Shaw. 913
Confidential relations, Trade secrets and. 100
Conger, Death of Frank. 391
Congress at Duesseldorf, International Navigation and Naval. 773, 855, 904, 964
The doings of. 997, 1031
Connecting rod, The King triangular. *1476
Conspiracy and strikes, New York legal decision on. 533
bill, The anti-. 675, 997
Foremen in—A difficult case. See "Foremen."
Contract, and other systems of compensating skilled labor, The. John Richards. 658, 676
in organizations, Right of—Right to strike upheld in New York. 533
Contracts abroad, Letting. 1599
of employment, Effect of discharge upon. 100
Contracting in Russia, The gentle art of. 865
Contractor in England, Bricklaying performances of an American. 885
Controller for electric jib cranes, Universal. Siemens. Bros. & Co., Ltd.'s *1009
Convention of employers and employees, Minneapolis. 1061, 1316, 1428
of machinery builders in Russia, A. 305
of the Eight-Hour League, Coming. 391
of the National Association of Manufacturers, Seventh annual. 593, 1028
of the National Machine Tool Builders' Association, The Cleveland. 1525
Machine Tool Salesman. 1725
of the National Metal Trades Association, The annual. 561
Co-operative plan, A proposed new. 1205
plan under which molders own shares in a foundry, A. Thos. Wathey. 210
Co-operators unacquainted. Tecumseh Swift. 444
Fred S. English. 561
Cooling a tool by compressed air; the use of oils in cutting metals. W. G. T. 1342
A. L. De Leeuw. *1456
drying and purifying machine, A gravity. Prof. Willis L. Moore's. 877
lathe work, An air blast for. 443
or tempering tank, A. D. E. M. *1136
Copper, A hard alloy of. 877
Bees-wax as a lubricant for cutting threads on. John Koehler. 192
George Nelson. 1271
pickaxe dug up, A hardened. 454
Process of hardening. 589
Sawing—High speed milling machine spindle; lubrication; holding commutators for sawing. A Toolmaker. *1125
Sawing. W. H. Booth. *1417
Welding. 1227
F. G. Emmelmann. 1378
Engineer. 1378
welding, Practical. 1509
Coppered surface on brass or bronze, To obtain a. A. H. 476
G. Schneider. 961
Copying—Carbon copies of sketches. D. E. F. 206
drawings by tracing. Cherry Red. 1315
W. H. S. *1457
with a copying pencil, A help in. Ahora. 849
Copyright law in Siam. 821
Copyrighting drawings. W. H. Sargent. 375
Core box for sheave pattern to suit molder's ideas. "Hobo." 344
Wm. Newton. 630
Francis W. Shaw. *635
box hooks and clamps. C. Neil. 1136

PAGE

Core boxes, Planing taper. Lucien I. Yeomans. *1412
prints. Francis W. Shaw. *635
Cores, Asbestos for thin. Chas. A. Heald. 953
for molding pipes, Ring. Geo. Buchanan. *491
for precision in iron casting, Use of steel. Lucien I. Yeomans. 1141, *1263
Francis W. Shaw. *1760
Making, locating and nolding shell. C. Neil. *1134
Setting, holding and drying. Old Bob. *1657
Corkscrews, A machine for twisting. Joseph V. Woodworth. *1362
Corliss valve gear, The. J. Begtrup. *127
Cornell, Average drawing room practice as determined by Prof. Barr, of. C. E. Coolidge. 874
Machinist. 990, 1234, 1722
—The premium plan in a university drawing course. *1694
Corner fasteners, etc., Punches and dies for box. Joseph V. Woodworth. *900, *940, *1116, *1192
rounding tool for patternmakers, A. C. W. Putnam. *803
Corners, A draftsman's tool for finding centers of fillets and. Spartan. *850
on patterns, Filleted and round. Stevoe. 949
Corporations, Proposed government supervision of. 1348
Taxation of. 498
Correct a newspaper, How to. 1695
Corrections on blueprints, Marking. F. W. Harris. 164
E. R. Plaisted. 380
Gerald E. Flanagan. 853
Correspondence about broken belting. 1259
schools. See "School," "Schools."
Corruption in British workshops, Alleged. 1140
Cosmopolitan, From the note book of a —Draftsmen and their ways; positive feed millers. 580
A Voice from the West. 703
From the note book of a—One thing and one thing only; Prof. Sweet and "his boys." 551
From the note book of a—Planer drives; Renold transmission chains; the new steel. 665, 677
From the note book of a—The evolution of machine tools. 690
Cost accounting system, A new factory. Wilfred Bancroft. *1048
accounting, The electrical tabulating machine applied to. *1073
of goods purchased for a specific use, Recording. Kenneth Falconer. 1648
of living and wages, The. 167
A Veteran Observer. 236
of making ordnance at Watervliet. 728
of Production, The. By C. J. Watts. †1031, 1093
System. Rogers' Universal—An Industrial Problem. By W. S. Rogers. †1662
Cotton mills. Child labor in Georgia. 1285
mills, Electricity in. W. B. Smith Whaley. 817
Counterbalances for locomotive cranes. See "Cranes."
Counterbore, A cheap. F. W. Unger. *952
with adjustable stop collar. H. Goldsmith. *1397
Counterbores, Inserted tooth. S. B. *199
Special operations in making mills and—Hardening, etc. E. R. Markham. *876
Counterboring on drill press, A square drive for. H. E. B. *1417
Countershaft. See also "Pulley," "Pulleys."
A neglected. Wm. H. Brooks. 338
A new friction. Smith Single Belt Reversing Countershaft Co.'s. *1304
A new variable speed. Lodge & Shipley Machine Tool Co.'s. *414, *1188
A reconstructed—Fixing a loose pulley. Woodworker. *1266
Friction. Wheaton Machine Co.'s. *794
Improved speed changing. Speed Changing Pulley Co.'s. *124
—New design of variable speed device. Reeves Pulley Co.'s. *1461
New. Hill, Clarke & Co.'s. *1662
reversing mechanism. Upton & Gilman's. *1557
—Variable speed devices. See also "Speed."
Countersink smoothly, How three patternmakers tried to. A Rounder. 1281
Countersinking, Jig for drilling and. Joseph V. Woodworth. *664
Counting and feeding balls and inserting ball retainers, A machine for. Billy Murphy. *402
machine, A new weighing and. Joseph S. Cortelyou's. *501

PAGE

Coupler, Inventor of the Miller car. Chas. W. Shartle. 763
Coupling, A compression. Vandegrift Coupling Co.'s. *917
A locked compression shaft. Patterson, Gottfried & Hunter's. *357
An expansion. Transmission. *762
An insulated flexible. George V. Cresson Co.'s. *454
Double compression line shaft. W. P. Davis Machine Co.'s. *647
in a tannery, Repairing a shaft. W. Osborne. 438
to an engine shaft, Fastening a. F. W. Harris. *1414
Couplings, Experience with Sellers shafting. A. Sangster. 476
Courtesy, Business. See "Confidence, An alleged breach of."
Cover, Molding a tank. Geo. Buchanan. *1404
on molding machine, Mounting a gear. Geo. Buchanan. *1130
plate, Molding a brass. Geo. Buchanan. *328
Coverings, Tests of steam pipe. Geo. H. Barrus. 814
Cowie, Death of Captain George. 775
Cracks in steel. E. R. Markham. *1077
Cradle for drilling, Laying out a yoke or. C. W. Putnam. *802
Crane at Krupp hall of Duesseldorf Exposition. *1447
brakes, Magnetic. Gerald E. Flanagan. *523
chains, Anchors for; casting hoisting drums. G. E. Flanagan. *1508
C. F. Blake. *1791
dated 1811, Shop. *585
design, Notes on—Chain, form of grooves used in drums, table of strength of wire rope, etc. *1010
design, Notes on—Electric wiring. A. D. Williams. *1710
Erratum. 1806
design, Notes on—Track wheels. A. D. Williams. *1308
design, Electric calculations in; construction of solenoids. A. D. Williams. *1676
Effect of wind on a. 1093
for handling a chuck, A. W. A. Warman. *191
T. H. Miller. 342
girders, Considerations in the design of. Samuel Odegaard. *67
runways, Rail clips and stops for. F. D. Buffum. *241
E. R. Plaisted. *591
Trouble with roller bearings on a. See "Bearings."
Cranes and runway girders, Notes on design of. A. D. Williams. *845
Counterbalances for locomotive. Robt. H. Kirk. *1329
Erratum. 1461
Development of traveling. Census Bulletin. 1645
Universal controller for electric jib. Siemens Bros. & Co., Ltd.'s. *1009
Crank centers, Jig for triple. C. W. Putnam. *805
disk, Duplicating the laying out of a. M. H. Ball. *799
disks, Lathe arrangement for boring crank pin holes in. Joseph L. Reid. *1267, 1652
Laying out a three-throw. C. W. Putnam. *802
pins, Filing. H. Rolfe. 24
Errata. 196
Repairing a broken. Anora. *628
shaft for a new bearing, Turning a. L. J. E. 1486
shaft in lathe at Krupp works, Six-throw. *839
shaft turning. Joseph Menegus. *1274
Cranks, Handy rig for turning. Beck. *488
Laying out keyways on triplex. C. W. Putnam. *1411
Crates, Dies for corner fasteners and hinges of boxes or. See "Boxes."
Critic criticised, A. 553
Crocker, Death of John B. 502
Crocker-Wheeler Co., Convention of branch office managers of the. 1461
Crook, Death of George Thomas. 1031
Crosby, Death of George H. 1838
Cross-heads, Tool for planing tinned. J. F. W. *22
Crowding machines, Over. Foreman. 1761
of machine shops. Tecumseh Swift. 1166
Crystallization of steel, Cause of. H. F. J. Porter. 865
Cubes, Small jig for drilling brass. Ver. I. Nier. *557
Cue tip, Fastening a billiard. Ver. I. Nier. *339
Cups. See also "Shells," "Die," "Dies."
caps, etc., Combined drawing and shearing die for. Charles Fischer's. *390
Multiple spindle drill for bottoms and nipples of grease. C. H. Besly & Co.'s. *1111

PAGE

Cups, Punch and die for cutting and drawing small. Ver. I. Nier. *1250
Cupola, A foundry-made. C. D. King. *1553
Cupping die, A multiple. A. P. Press. *701
punch and die for double-acting automatic cam press. Mattatuck. *1518
Curves of steam engine progress. Sidney Graves Coon. *91
of straight lines, Drawing smooth. Gerald E. Flanagan. 880
Cushion, Test of an elevator air. 1511
Cut when a gear is not true, For correct depth of. Robt. H. Lachmann. 1770
Cutlery by a new process. Joseph Misko's. 1063
Cutter, A special drive for a facing. H. E. B. *1417
A stepped stocking gear. Gould & Eberhardt's. *423
Brown & Sharpe Mfg. Co. *561
Heinrich Meyer. 705
Gould & Eberhardt. 773
and leave ends straight, Invention to slot with milling. Howard A. Coombs. *182
bar and fluted reamer, Pulley. Peter Chiampon. *1552
for boring a large hole, A. W. E. Bilger. *1413
for milling the jaws in mill housings. A Pittsburgh Machinist. *1134
for slabbing connecting rod links, Self-hardening steel milling. *1712
grinder, Automatic. F. Gleason Machine Works'. *691
grinder, Thread milling machine and special. Pratt & Whitney Co.'s. *1629
hardening job, A difficult. E. R. Markham. *753
likely to lose its teeth in hardening, A milling. E. R. Markham. *1077
Portable hydraulic staybolt. Otto Philipp's. *1642
Bell Crank. 1790
Setting a boring. A. H. Cleaves. *7
Cutters, A hollow mill with inserted. Roger Haines. *640
A simple lathe attachment for relieving the teeth of milling. Frank W. Parker's. *422
Apparatus for hardening rotary. Henry Liebert's. *741
by Cincinnati Milling Machine Co., Grinding the central boss of. *870
Cutting bevel gears with spur gear. J. J. Stevens. 477
Fastening boring. Beck. *1409
for boring bar, Expanding. Barker & Spink's. *390
Hardening thin. E. R. Markham. *902
Holder for grinding thread tool. H. E. B. *805
Improved device for backing-off milling. Gus. C. Henning's. *1340
in a collet, Holding straight shank. Theodore. *30
Lathe arrangement for backing off milling. Billy Murphy. *672
Right-hand spirals for end mill. *866
etc., Combined oil and water hardening of taps, milling. John L. Bacon. *325
Har. D. Ning. *631
Cutting engine, An escape wheel. A. H. Cleaves. *331
gaps in the edges of beams, Mistakes of builders in. Gerald E. Flanagan. 994
metals, The use of oils in; cooling a tool by compressed air. W. G. T. 1342
A. L. De Leeuw. *1456
off machines, Saw. See "Saw."
off springs, Fixture for. A. H. *733
off the ends of blooms, The flying shear for. V. E. Edwards. 819
off tool for the hand lathe, A. Carroll Ashley. *951
off wire, Fixture for. Ver. I. Nier. *1250
off wire, Tools for. Peter Chiampon. *1552
tools, The action of cutting. William Taylor. 1705
up metal, The electric arc for. 694
Cyanide, Case-hardening with potassium. Theodore. *338
Cycle, Entropy analysis of the Otto. Sidney A. Reeve. 1797
Cyclone arrester, Inventor of a. Chas. W. Shartle. 763
Cylinder, Boring and accurately finishing a 5-inch dynamometer. W. S. Leonard. *1170
See also "Boring pulleys."
cover with flat drill as a turning tool, Machining a model. F. W. Shaw. *793
Fitting a piston head in a—Shop temperature. W. Osborne. 1193
—Gas engine piston head fits. W. Osborne. 1459

PAGE

Cylinder in erecting, etc., Pins for gaging alinement with. I. W. Payler. *959
lubricant, Graphite as a. 553
on a planer, Planing a large. A. G. Children. *766
on the tannery engine, Putting a new. W. Osborne. 795
Patching a locomotive. W. Osborne. *834
Repairing a broken. H. M. Lane. 819
The determination of the temperatures in a gasoline engine. E. C. Oliver. *982
Cylinders for boring, Device for holding. E. D. Becker's. *126
taper, Boring. W. Osborne. 900
The open side extension planer for locomotive. Detrick & Harvey Machine Co.'s. *94
with cylinder covers arranged for easy removal, Tandem compound steam. *1018

D

Dade, Death of Francis Cadwalader. 677
Damages paid by New York elevated railways, An English blunder about. 1061
Damper, Simple device for opening a furnace. S. B. *1454
Darby, Death of Henry E. 70
Dash pot used in an attempt to increase the return speed of a planer, A rotating. C. H. M. *960
Daunert on the metric system, Mr. 700
D'Auria air compressor, The. E. R. Plaisted. 1377
Davis, Death of Charles. 1695
Death of William E. 1695
Day bill, The eight-hour. "Pittsburgh." 454
675, 772, 997
Boston railroad shop boilermakers to ask for a nine-hour. 309
—Coming convention of the Eight Hour League. 391
decree in Teneriffe, Eight-hour. 999
discussion of National Civic Federation, Shorter. 1834
Economic effects of the eight-hour. Frank L. McVey. 1429
law in Rhode Island constitutional, Ten-hour. 999
Molders of New York secure a nine-hour. 999
The length of the work. 1460
Hugo Bilgram. 1521
The nine-hour day. See also "Machinists."
Day's labor in France and America, Reckoning length of a. 168
Dayton, O., Report of Employers' Association of. 695
Deane, Death of Charles Pemberton. 135
Decimal system for numbering working drawings, A. See "Drawings."
Deering Harvester Co. may make steel. 645
Delivery in foreign trade, The importance of quick. F. C. C. 1077
De Long, Rear Admiral Melville on the search for. 1836
Denmark, Outlook for American machinery in. Henry L. Geissel. 1493
Department of Manufactures and Commerce, The new. 421, 594, 597, 997, 1351
Depth gage. See "Gage."
Design, A new phase of machine—Perspective drawings. See "Drawings."
Crane. See "Crane," "Cranes."
Easy Lessons in Mechanical Drawing and Machine. By J. G. Meyer and C. G. Peker. †499
Habits and machine. See "Habits."
Notes on Machine. By C. H. Benjamin. †453
Designer's Note Book, From a—A rapid transit nut for calipers; universally adjustable rod clamp; ventilating pulleys; Geneva stop; silent reversible and non-reversible roller ratchets. W. E. R. Markham. *909 *1396
Designing, Careless—Engine frames, pipe hanger, cam-driven sieve. Peter H. Bullock. *1395
Desk, A glass covered. S. H. M. 561
S. P. Y. 851
Diagram applied to estimating length of belts, Culmann. Jon. *1829
Electric crane wiring. See "Crane."
for a gasoline engine, Indicator card and temperature volume. E. C. Oliver. *982
for estimating time required for lathe work, etc. Arnold Thompson. *985
for laying out spiral gears, A. J. N. Le Conte. *296
See also "Gears," "Gearing."
for photographic exposures, A. F. W. Seidensticker. *1706

PAGE

Diagram for the combination of direct and shearing stresses, A. E. R. Douglas. *978
for the solution of problems in belting, A. Frank B. Kleinhans. *988
for the strength of helical springs. Geo. F. Summers. *1822
for the thickness of boiler plates. James A. Brown. *300
of thermal efficiency of gas and other engines. *1819
showing relation of power, feed and size of drill in drilling cast iron. Bickford Drill & Tool Co.'s. *1335
Dodge and Day. 1689
Diagrams. See also "Chart," "Charts."
Corliss valve. J. Begtrup. *129
Displacement—The weight of flywheels for alternating current units. J. Begtrup. *986
for feeds and speeds of different tools. Stanley H. Moore. *1857
for paper and iron friction gearing. See "Gearing."
for semi-elliptic plate springs. See "Springs."
Heat and evaporation. John C. Parker. *59
of steam engine progress. Sidney Graves Coon. *91
of valve movements of Rhodes' high-speed engine. *662
Velocity. By C. W. MacCord. †168
Diamond-point lathe tool, The. Knocker. 344
W. H. M. "Minnesota." 807
Carroll Ashley. *1766
Dictionary—The Technolexicon. †1492
Die, A bending punch and. J. A. B. *352
A button assembling. H. Hornick. *1520
A combination blanking. William Doran. *980
A double "bumping." A. P. Press. *480
A multiple cupping. A. P. Press. *701
A sheet metal punching and bending. J. P. Appleby. *732
An eye forming punch and. C. H. Rowe. *625
and a novel bending and forming die, A piercing and blanking. William Doran. *183
and an accurate sectional die with a chute feed and finger stripper for compartment skeleton for a tin chemical box, A cutting off and end finishing. Joseph V. Woodworth. 187
arrangements for bending a blank. C. O. D. *734
for an aluminum piece, A bending and forming. C. H. Rowe. *1052
for blanking and stamping a fancy shell, Question about a. B. J. Dougherty. 33
Joseph V. Woodworth. 194
for box corner fasteners, An automatic combination piercing, bending and twisting. Joseph V. Woodworth. *1116
for box corner fasteners, A "follow"—Drawing, piercing, end-finishing, cutting-off and bending in one operation. Joseph V. Woodworth. *900
for box hinges. See "Dies."
for box seals, Punch and—End finishing, cutting off, and bending sheet metal from the strip without waste; dies for box or trunk corner fasteners. Joseph V. Woodworth. *1192
for box straps, Piercing and spreading; piercing die for long strips; gang die for box lid fastening plates. Joseph V. Woodworth. *1311
for brass clock gears, Punch and; movable stripping devices. Wm. Doran. *1544
for cutting and drawing small cups, Punch and. Ver. I. Nier. *1250
for cutting large washers, Hydraulically operated punch and. C. Patterson. *1024
for drawing and for trimming the edges of cups, caps, etc. Charles Fischer's. *390
for double-acting automatic cam press, Cupping punch and. Mattatuck. *1518
for fine punching and blanking without sub-press. Cutter Maker. *201
for insulation lining of socket shell base, Forming and trimming punch and. Barney. *1421
for making aluminum button backs. H. A. Hornich. *451
for making electric light shade holder, A punching, drawing and forming. W. W. P. *768
for making many small holes in "locomobile" press burner. J. L. Lucas. *448

PAGE

Die for nail heads or buttons, A blanking and forming. W. E. Callaghan. *22
for piercing conical shells, A quadruplicate, automatic slide. William Doran. *332
for threading large pipe. J. H. Dunbar. *1423
for wattmeter armature guard ring cup, A combined drawing and forming. J. W. White. *878
for "wiring" sheet metal hinges, Special octagon. Joseph V. Woodworth. *943
holder, A self-adjusting screw lathe. A. H. Cleaves. *482
holder, A thread. Adam Herkner. *342
holder, A thread. H. T. C. *912
holder for screw machines, Tap and. F. C. Tyler's. *1662
for slitting and cutting off press board, A punch and. Toolmaker. *1719
making, Artistic. Joseph V. Woodworth. *696
making—Contraction or expansion of steel in hardening. See "Steel."
Punching four holes at right angles without a. "Needle." *192
Repairing a broken. S. V. S. *204
sinking for drop forging of gun parts. Theodore. *30, *212
stock, A handy. W. R. G. *493
stock, Improved. Curtis & Curtis Co.'s. 998
Wire cutting. Peter Chiampon. *1552
work, Doing the impossible in. J. L. Lucas. 797
work—Fixture for forming taper tubes with feed motion for the blanks. Moses J. Wilder. *90
work—Gain by changing a punching and forming operation: kink where holes near edge broke out. Wm. H. Brooks. *705
work—Hinge making in an old shop. C. H. M. *630
work—Huber system of hydraulic pressure. Paspra. 765
work—Making spoons and forks. F. Candor. *936
work—Press notching instead of milling. W. *703
work—Rounding the edges of brass disks. Joseph V. Woodworth. *758
Dies, A simple method of locating punch holders and. Harry Ash. *1418
and punches? What kind of steel for. W. A. Warman. 197
beading and otherwise, for rectangular tin boxes, A set of. Joseph V. Woodworth. *1014
Cold working sheet metal in: formulas for cups or shells; depth to which they may be drawn; sizing blanks; coining and armature disk punching press work, etc. John D. Riggs *et al.* 819
Experience. 1056, 1553
Erratum. 1792
H. E. Brown. 1455
Eye glass strap. Frank Greiner. *1758
Feeding sheet metal to. Joseph V. Woodworth. *1861
for a sheet metal bracket. Joseph V. Woodworth. *258
for an aluminum soap box, Combination. H. Robinson. *1542
for button blanks, Multiple. Mattatuck. *1721
for circular shells, Large drawing. Joseph V. Woodworth. *1159
for drawing deep shells. Joseph V. Woodworth. *1338, 1382
Mattatuck. *1518
Experience. *1686
A. C. R. *1832
for forging boilermakers' punches, Making. Theodore. *806
for forming handle bar clamp. E. E. Minard. *1170
for jewelers' work. Frank Greiner. *590
for making a large safety pin, Punches and. William Doran. *262, 312
for punching holes in coin assorter. J. A. Webster. *1137, 1140
for punching leather shoe tips. Joseph V. Woodworth. *469
for the manufacture of sheet metal hinges, A complete set of. Joseph V. Woodworth. *940
Four "follow." Joseph V. Woodworth. *229
Grinding out. Carroll Ashley. *1269
Holding punches and. Toolmaker. *1487
Large screw threading. S. R. *1793
The making and use of simple. Peter Chiampon. *1372
Transferring chucked work to different machines in making subpress. M. W. Leech. *27
etc.—Perforating flat and cylindrical sheet metal. Joseph V. Woodworth. *1708

PAGE

Difficult case, A. See "Foremen."
Dill, Death of James T. 247
Dimension on drawings, To find the unknown. Frank B. Kleinhans. *1163
Directions on drawings, Finish. See "Drawings."
Directory—Hendricks' Commercial Register of the United States. †1526
of the Textile Industries, Textile World Official. †1062
Discharge of an injured employee, An employers' liability insurance company demands the. 389
upon contract of employment, Effect of. 100
Discipline in a shop, System and; discharging men for negligence. See "Foreman"; "Foremen"; "Orders"; "System"; "Shop, How to brace up a."
Discoveries, Wonderful newspaper. 167
Disk, Duplicating the laying out of a crank. M. H. Ball. *799
Disks, A stripper for punching thin. H. R. Ash. *203
at General Electric works, Making armature. 1256
Lathe arrangement for boring crank. Joseph L. Reid. *1267, 1652
Rounding the edges of brass. Joseph V. Woodworth. *758
Displacement curves—The weight of flywheels for alternating current units. J. Begtrup. *986
efficiency of an air compressor. (7) 743
Divider leg, Block for holding pencil to. John M. Richardson. *1249
Dividers, Beam. M. W. Leech. *205
Spring. O. G. B. *1128
200 years old, Three-legged. *619
Dividing fractions in half. Pinkney. 1866
head universal, Scheme for making the universal. W. A. Warman. *698
the circle. J. P. Appleby. *1275
Joshua Rose, Jr. *1456
Dixon, Death of Samuel. 216
Dodge, James M.—New president A. S. M. E. *1794
Dog, A balanced lathe. Milton B. Hill's. *40
A new lathe. Eddystone Engineering Works'. *1710
A self-acting lathe. George Turton, Platts & Co.'s. *500
and sub-center, Combination hand. Willis G. Young's. *1237
for car axles, Lathe. Shartle Brothers Machine Co.'s. *998
for heavy cuts, Lathe. Billings & Spencer Co.'s. *678
Lathe. Armstrong Bros. Tool Co.'s. *500
Dogs, Wrench for lathe. D. E. F. *206
Donkin, Death of Bryan. 423, 524
Don'ts for steel workers. Horace Allen. 103
Dooley on machinery, Mr. 1593
Door system, Doerr safety bulkhead. 125
used to cover hole made in giving clearance. 6
Dovetailed thread, A. Charles Fischer's. *41
Dovetailing, Sawing for. C. R. Harris. *207
Draft, Simple device for opening a furnace. S. B. *1454
Drafting machine, The universal. Universal Drafting Machine Co.'s. *689
Draftsman. See also "Drawing," "Drawings."
and his work, The—Deviations from drawings, insufficient credit, "tramp" draftsmen, compensation, etc. Kabe. 1522
and his work, The—Taking active part; meaning of "engineer." S. P. Y. 1831
and the blueprint in shop practice, Twenty-five years' progress of the. 1581
In defence of the. Eben Bones. 1345
The tramp. F. W. Harris. 164
The trials of a—Typewriter shop, lack of system, third angle, ignorance of superintendent. W. W. P. 1551
L. O. Danse. 1830
Draftsman's slide rule, Five important markings of a. Geo. F. Summers. *233
temptation, A—Guessing at dimensions. Machinist. 1722
Draftsmen and their work; rapidity; sticks used for drawings. Cosmopolitan. 580
Draft. 1165
from entering the shops, Prohibiting. Tecumseh Swift. 444
Fred. S. English. 561
—The need of practical and technical training. G. E. Flanagan. 1200
Draftsmen's kinks—Coloring edges of rule, shaping ink bottle stopper handle. S. C. Heibe. 382
Drawer pulls, A patternmaker's tool chest with combination. Tool Chest. *1270

PAGE

Drawing. See also "Draftsman," "Blueprint," etc.
—A beam compass clamp. G. A. Gerdtzen. *1025
A Manual of. By C. E. Coolidge. †1559
of a pipe fitting—The draftsman's marks and the foreman's. Machinist. *1754
—A ready construction of the ellipse. W. S. Buvinger. *905
—A vertical tracing pencil. M. E. D. *1281
and Machine Design, Easy Lessons in Mechanical. By J. G. Meyer and C. G. Peker. †499
—Blueprint case. M. M. *1086
—Blueprinting frames. Draftsman. *1022
Apprentice. *1231
board again, The straight-edge for the. Apprentice. *1519
board and T-square, A magnetic. W. T. Ellison & Co., Ltd.'s. 1805
board attachment to hold the T-square. Edward W. Monahan. *1866
class, The methods of conducting a shop. Eugene C. Peck. *810
Correspondence school instruction in. A. B. C. 66
X. 202
S. B. 240
Student. 382
course, The premium plan in a university. *1694
Elements of Mechanical. By A. P. Jamison. †1559
file, Board. Machinist. 1234
for School and Self-Instruction, Mechanical. By A. E. Rhodes. †452
given by mechanical schools, Wrong impressions about. C. H. Norton. *980
1060
S. P. Y. 1656
instruction, Suggested plan of. Engineer. 1865
instruction pamphlet of American School of Correspondence, Extracts from. 1341
instruments 200 years old, A box of. E. P. Buffet. *616
—Marking details "to fit"; marking fine threads for large bolts. Gerald E. Flanagan. 1266
office of the General Electric Co. *1254
—Preparing tracing cloth for ink. A Reader. 1056
room—A method for making exact computations. Geo. F. Summers. *1511
room, Characteristics of boys and men for the. X. 202
B. M. 634
room practice—Breaking in steel lettering pens. Oliver B. Zimmerman. 274
room practice—Laying off angles without a protractor. A. D. Williams. 165
room practice—Marking blueprints. F. W. Harris. 164
E. R. Plaisted. 380
room practice—"To fit." John Randol. 800
N. A. C. 1413
room, Notes for the—Cards for details; marking blueprints; expressing fractions; borrowing; making thumb indexes for reference books. Gerald E. Flanagan. 853
room, Notes for the—"Full" and "scant" boring; leaving strip for cutting a base for planing; checking drawings; drawing smooth curves of straight lines; marking pencils for hardness; table for use with flat boards. Gerald E. Flanagan. *880
room practice as determined by Prof. Barr, of Cornell, Average —Sizes of drawings; scales for detail and general drawings; conventions for dimensions, center and extension lines; indication of alternate position of parts; colors; cross-hatching; indication of materials; water colors for section; indication of finish; shade lines; dimensions in inches or feet and inches; third angle projections; fractions; lettering, etc. C. E. Coolidge. 874
Machinist. 990, 1234, 1722
room tool for finding centers of fillets and corners, A. Spartan. *850
scale to the T-square, Attaching the. J. C. Hafner. *1454
school methods, Evening. Roy John Hannon. *1368
screw threads, An instrument for. Roger Haines. *303
screw threads and section lining, Device for. Edward A. Osse. *1277

PAGE

Drawing shells, etc.—Die work. See "Die," "Dies," "Shells."
table, A home-made upright. W. A. Sylvester. *446
table, A sewing machine. D. E. M. *1270
table, An inexpensive. J. A. Neikirk. *878
table and a drawing board, Another. A. P. *446
table of gas pipe, A. W. H. S. *163
table with drawers. G. J. *1458
Text Book of Mechanical. J. S. Rooke. †1695
the isometric circle. Rube. *444
triangle, Marking constants on celluloid. F. W. Harris. 883
—"X-ray" pattern work. Billy Murphy. 497
G. Schneider. 961
Drawings, A decimal system for numbering working. S. L. G. Knox. 64
A. D. Williams. 66, 123
Robert J. Hearn. 161
Henry L. Hutson. 161
A. B. Holley. 161
An example of how not to make. H. *848
and manuscript for publication, Reference letters on. 1030
and materials, Indexing. *1824
and patterns for screw propellers, Making. Old Bob. *530
Young Bob. 850
and recording the changes, A system of changing. S. A. Worcester. *1674
Bundles of sticks used for; rushing draftsmen. Cosmopolitan. 580
Draft. 1167
by tracing, Copying. Cherry Red. 1315
W. H. S. *1457
—Carbon copies of sketches. D. E. F. 206
Copyrighting. W. H. Sargent. 375
Finish directions on. Sanford N. Moss. *493
Fred. S. English. 560
C. E. Coolidge. 875
C. W. Prentiss. *1056
for machine tools, Foundation. C. D. McArthur. 1554
for publication, Manuscript and. 623
from AMERICAN MACHINIST to be used in Chicago schools. 1639
Incomplete; Sizes of drawings. Machinist. 990, 1234
Perspective—A new phase of machine design. 1284
Julius Kreis. 1345, *1653
W. H. S. *1486
Lawford H. Fry. *1649
J. W. B. *1654
Postage on. W. S. R. 946
Lida M. Broomall. 1142
Reading—Arrangement of views; size; "round or square feet"; a shop class. L. O. Danse. 1284
Saving time in making; needle points for holding tracings; keeping drawings clean. Frank B. Kleinhans. *1655
Shade lines on. Sanford A. Moss. 593
A. D. Williams. 849
C. G. Peker. *1231
To find the unknown figure on. Frank B. Kleinhans. *1163
Trying to build machinery without. G. E. Flanagan. 1683
with celluloid, Protecting. L. O. Danse. 20
Dream, The tea-kettle. 416
Dressed man in Omaha, Machinist the best. 1867
Dresser attached to grinder, Emery wheel. Perry Ransom's. 40
Drift, The drill, the socket and the. Drill Drift. *14
—Tool for removing drills. Martin Steudner's. *1773
Drill, A new radial. Mueller Machine Tool Co.'s. *1217
A tapping attachment for an upright. Fred. W. Unger. *208
An extension. Carroll Ashley. *1418
and two jigs used in spotting, drilling and counterboring holes in wheels for leather perforating machines, Sensitive. Joseph V. Woodworth. *155
as a turning tool, The flat. F. W. Shaw. *792
backward, Running a. W. Osborne. 1801
base plate, Stopping off in molding a radial. Albert Clegg. *1264
chuck. Frederick P. Gates'. *597
A new. Westcott Chuck Co.'s. *1870
Electrically driven upright. Gould & Eberhardt's. 422
for bottoms and nipples of grease cups, Multiple spindle. C. H. Besly & Co.'s. *1111
go through file, Hardening mixture promised to make. Cherry Red. 1234

PAGE

Drill for electric motor yokes, A special radial. Roos & Mills'. *1714
grinder, Grinding and polishing attachment for twist. L. S. Heald & Son's. *1317
handle, Drop forging a ratchet. Theodore. *955
in ratcheting, Holding back a twist. Robt. A. Lachmann. 1269
jig, A magnetic. A. L. De Leeuw. *324
Ferd. Wertheim. *1509
jig, A small, cheap. J. L. Gard. *805
jig clamps, Compressed air for. L. O. Danse. 1523
jig design, Points in—Feet; bushings; meaning of "interchangeability"; decreasing cost of erecting by better machining, etc. L. O. Danse. 1373
S. F. Arthur. *1865
jig for cast iron segments. D. E. McCarthy. *334
jig, Indexing. H. Goldsmith. *1261
jigs, Some small. D. E. MacCarthy. *738
press, A holder and combination tool for the. Tool Room. *883
press built in school shop. Wilbert S. Drew. *1864
press columns, Lathe footstock attachment for facing. H. Goldsmith. *1262
press in an old-fashioned shop. B. W. T. *205
press jig, Two-spindle. E. M. *1272
press, Milling in the. Joseph V. Woodworth. *758
press tool for cutting out large fiber washers for embossing rolls, A special. Joseph V. Woodworth. *1720
press vise and jig. Graham Mfg. Co.'s. *41
press with improved tapping attachment. Cincinnati Machine Tool Co.'s. *1283
presses, Suggested improvement for aligning work in; ball bearings discussed. Ferd. Wertheim. *1509
presses, etc., A new vise for. Hill Tool Co.'s. *1030
sizes for V-threads, Tap. L. O. Danse. 1107
socket, Improved. Irving Barker's. *742
The new "Western" radial. Hill, Clarke & Co.'s. *1473
Erratum. 1555
The oil-tube. Census Bulletin. 1645
The rise of the. 1582
the socket and the drift, The. Drill Drift. *14
Universal rachet wrench and. Universal Mfg. Co.'s. *454
used as a steam hammer, A rock. W. A. Zee. *1087
with Commercial Electric Co.'s variable speed electric motor, Multiple spindle. *587
Drills, A chuck for small twist. Toolroom. 1281
and other machine tools, Suspended. Tecumseh Swift. 1127
and taps, Stand for. S. V. S. *204
Clamp hubs resembling those used on feed screw handles of rock. Tim Handyside. *883
for spindles, used by the Cincinnati Milling Machine Co. *867
Grinding, etc., flat. J. Cook. *195
Telbin. *629
J. O. B. 639
in early days, Grinding twist. W. Osborne. 1587
Marking twist. J. D. Cox. 13
J. C. Green. 195
Spindle. H. Goldsmith. *789
theoretically correctly, Grinding. W. A. Warman. 98, 304
D. Addie. 164
C. H. Buckley. 382
Tool for removing. Martin Steudner. *1773
when grinding, etc., New setting instrument for testing twist. Morris Chamberlain's. *998
without slip, To drive. James D. Anderson. *639
etc., Combination hand-dog and sub-center for. Willis G. Young's. *1237
Drilled, reamed and tapped, Jig for holding snap limit gages while being. W. E. Hunter. *638
Driller, Electrically driven radial. Dreses, Mueller & Co.'s. *334
Making large holes with a small. Joseph V. Woodworth. *2
Drillers, A quarter-century's progress in. W. F. & John Barnes'; Bement, Miles & Co.'s; Gould & Eberhardt's; New Haven Machine Co.'s; Pratt & Whitney Co.'s; Wm. Sellers & Co.'s; Niles Tool Works Co.'s. *1600

PAGE

Drilling a circular plate, Jig for. Cleveland. *1026
a hole half in one piece and half in another. A. N. Nay. 627
G. Schneider. 962
a large number of castings, A jig for. William Murphy. *490
a lot of small holes, A stepping jig for. Joseph V. Woodworth. *2
a nipple, Jig for. W. H. Lehman. *737
a small eccentric, A jig for. Peter Chiampon. *1414
A special casting with jigs for milling and. Mac. *347
a special spring and prong nut, Rig for. L. E. W. *882
and milling machine, A large horizontal boring. Niles Tool Works Co.'s. A. L. De Leeuw. *1785
and milling slot lever castings, A string jig for. C. Patterson. *14
and tapping ball handles, Jig for. L. E. W. *20
B. M. *625
attachment, A six-spindle. J. N. Germain. *1756
attachment, High speed; Jig for drilling ball handles. Geo. J. Meyer. *1119
brass cubes and rings and drilling and counterboring balls, Jigs for. Ver. I. Nier. *557
cast iron—Electrical tests; chart showing relation of power, feed and size of drill. Bickford Drill & Tool Co.'s. *1334
Dodge & Day. 1689
circular brush cores, Jig for. J. A. Webster. *1278
extraordinary with Bickford drills. *1044
Erratum. 1142
fixture, A screw machine. H. T. G. *1637
holes in a helical casting, Fixture for. Joseph V. Woodworth. *758
holes in planer bed with makeshift device. Joseph V. Woodworth. 3
jig. Peter Chiampon. *1552
jig, An octagon. N. A. C. *17
job, A milling and. N. A. C. *801
Laying out a forked lever for planing and. C. W. Putnam. *947
Laying out a yoke or cradle for. C. W. Putnam. *802
machine, A vertical deep-hole. Whitney Mfg. Co.'s. *357
machine at work on segmental rope driving wheels, Special radial. Bickford Drill & Tool Co.'s. *1153
machine of Humpage, Jaques & Pederson, Ltd. James Vose. 1737
machine, Portable double spindle. Newton Machine Tool Works'. *840
machine, Three-spindle rail. Newton Machine Tool Works'. *865
on automatic turret lathe, True. *868
pawls, Jig for. Mac. *31
C. W. Coburn. *625
plate, A ball-bearing. C. Aliper. *14
rails on the elevated railroad. 1236, 1317
rings from the inside. Lathe Hand. *490
rough castings in pairs, Jig for; jig for drilling and countersinking. Joseph V. Woodworth. *664
the leaf of a jig before broaching for taper pin on which hinge swivels, Jigs for; Jig for drilling milling machine vise jaws. W. E. Callaghan. *496
where work is overhanging, Transferring holes in. A. H. Cleaves. *8
Drinking—A night gang. W. Osborne. 1859
water for workmen. 646
Drive, A square. H. E. B. *1417
for a facing cutter, A special. H. E. B. *1417
Variable speed. George Richards & Co.'s. *788
Drives. See also "Belt," "Belts," "Chain," "Chains."
Planer. A Cosmopolitan. 665, 677
Driver, A releasing stud. Isaac Morgan. *1282
Drivers for heavy work, Milling machine arbor. Robt. A. Lachmann. *954, 1265
Corneil Ridderhof. *1120
E. S. Newton. *1123
A. Miller. *1762
Driving, The Crafts system of electric. *1019
Drop forging. See "Forging."
Drums and bushings for a mine hoisting plant, Making new. B. W. T. *1135
Designing and casting hoisting; anchors for crane chains. G. E. Flanagan. *1508
C. F. Blake. *1791
Forms of grooves in crane. *1011
Drying of castings, Skin. Harris Tabor. *1597
Dues of A. S. M. E. Proposed increase of. 811, 1795
Duodecimal system, Paper on the. Sidney A. Reeve. 1795
Dynamite gun inventions. Grahame H. Powell. 257

PAGE

Dynamite-throwing gun plant, Sale of the Sandy Hook. 996, 1173
Dynamiting scrap. Monongahela. 1406
Dynamo by Jean Veber, Symbolical picture of a. 677
Electric Machines, Practical Calculation of. By A. E. Wiener. †453
housing on an inside turning mill, Hydraulically adjusting a. *443
—Universal commutator bar gage. A Tool Maker. *271
Dynamos—Alternating Current Machines. By Samuel Sheldon and Hobart Mason. †854
Armature Windings for Direct Current. By E. Arnold. †774
—The weight of flywheels for alternating current units. J. Begtrup. *986
Dynamometer cylinder, Boring and accurately finishing a 5-inch. W. S. Leonard. *1170
See also "Boring pulleys."
The Froude water. *1220
Dynamometric work, etc., An automatic recording machine for. E. C. Oliver. *289

E

Earth and the engineer, The. Justice Brewer. 667
Eastwood, Death of Charles. 70
Eccentric, A jig for drilling a small. Peter Chiampon. *1414
A lost—Shop honesty. W. Osborne. 409
and strap of King-Riedler air compressor. *1477
keyed with wire nails, An. Mac. *1277
piston rings, Turning. A. B. C. *206
strap, Rig for boring spherical. P. E. Woodward. *27
Eccentrics, Lathe attachment for turning. Isaac Morgan. *627
with a turret on an old lathe, Turning. B. W. T. *1410
Echo from the Oil Country, An—Experience with a rich partner. A. Tyke. 1793
Echoes, An appreciation of the Oil Country. Gerald E. Flanagan. 1421
from the Oil Country. W. Osborne. 5, 54, *94, 160, 177, 228, 261, 323, 375, 409, 438, 467, 516, 554, *578, 621, 663, 691, 726, 759, 795, *834, 870, 900, 945, 988, 1020, 1043, 1118, 1156, 1193, 1219, 1304, *1336, 1366, 1398, 1476, 1539, 1587, 1646, 1739, 1801, 1859
from the Oil Country, Re—Giving and following orders. See "Orders," "Screw cutting."
Economies, Some pattern shop; system and order. J. L. Gard. 808
Foreman Pattern Maker. 1129
Wm. Newton. *1265
Economy due to reheating compressed air. W. G. Edmondson and E. L. Walker. *1080
in the foundry—Flour, plumbago, sand, coke, patternmaking, flasks, etc. P. R. Ramp. 1079
of living, Workmen's. Wm. H. Brooks. 640
Tecumseh Swift. *641
The American Institute of Social. 1383
—Trying to build machinery without drawings. G. E. Flanagan. 1683
Educated engineer, The responsibilities of the. George S. Morison. 559
Education. See also "School," "Schools."
at Finsbury, Technical College. John Perry. 1512
for the machine trades. Samuel M. Vauclain. 269
for the mechanic, A plea for technical. Victor C. Alderson. 1173
—Influence of scientific schools on engineering advance. Rear Admiral George W. Melville. *1574
Lubrication and. Tecumseh Swift. 304
Over. 596
Technical—Teachers, shop knowledge, drawing room methods. Engineer. 1865
Tenth annual meeting of the Society for the Promotion of Engineering. 885
The AMERICAN MACHINIST and. Robert H. Thurston. *1569
The economic value of technical. Victor C. Alderson. 1186
—The need of practical and technical training. G. E. Flanagan. 1200
The *Philistine* on. 521
Where shall the youth of India seek their. 738
Efficiency, Living for. Tecumseh Swift. *641
of an air compressor, Displacement. (7) 743

PAGE

Efficiency of different engines, Diagram of thermal. *1819
The maintenance of industrial. 1140
Egg shells, The strength of. Albert E. Guy. *1222, 1237
Tecumseh Swift. 1313
Eggs and steam hammers. Tecumseh Swift. 449
See also "Hammer at the."
Eight-hour day. See "Day."
Ejectors worked by water. Fred H. Colvin. 1343
Elasticity, A roller extensometer for testing. Gus C. Henning. 816
of long bolts. Gerald E. Flanagan. 1266
of rubber, Discussion on the. 1800
Electric alternators, Flywheel capacity for engine-driven. Walter L. Slichter. 1797
analogy, A pneumato- 69
arc for cutting up metal, The. 694
button, A gas engine started by pressing an. 556
circuit breaker for use in charging storage batteries. Westinghouse Electric & Mfg. Co.'s. 1142
Co., Atlantic Ave. station of the Boston Edison. I. E. Moultrop and R. E. Curtis. 815
Corporation in England, The Midland. 1251
crane calculations; constructing solenoids; wiring. See "Crane."
driving of machine tools. Census Bulletin. 1645
driving of machine tools. Charles Day. 1851
driving, The Crafts system of. *1019
generator sets. Some details of direct-connected. William H. Bryan. 818
hoist, New. Sprague Electric Co.'s. *1205
hoist, Special. Pawling & Harnischfeger's. *89
jib cranes, Universal controller for. Siemens Bros. & Co., Ltd"s. *1009
lamp shade holder, A punching, drawing and forming die for. W. W. P. *768
light blue printing. See "Blue printing."
locomotives, General Electric Co.'s report on. 675
Machines, Practical Calculation of Dynamo. By A. E. Wiener. †453
motor brush-holder yoke, Milling jig for. C. Aliper. *348
motor with two armature windings. Variable speed. Commercial Electric Co.'s. *587
motor yokes, A special radial drill for. Roos & Mill's. *1714
motors, A new line of. Akron Electrical Mfg. Co.'s. 1661
motors, Milling machine for armature spiders of. Newton Machine Tool Works'. *757
power at Audun-le-Tiche, Lorraine, Blast furnace with. Frank C. Perkins. *545
power, The position of the U. S. in the production and utilization of. Sidney Graves Coon. *552
power transmissible 300 miles. 762
power transmission, Success in long distance; problems at Stockton, Cal. F. A. C. Perrine. 1447
power transmission—The Power Plants of the Pacific Coast. By F. A. C. Perrine. †854
shop locomotives. C. W. Hunt Co.'s. *145
soldering iron, An. W. *963
trust in Germany, Proposed. 1870
wattmeter armature guard ring cup, Combined drawing and forming die for. J. W. White. *878
Electrical and Magnetic Calculation. By A. A. Atkinson. †854
Catechism, The. †1175
dynamo design, Necessity of theory in. 436
equipment of the Nordberg Mfg. Co.'s. plant, The. *929
Measurements, The Arithmetic of. By W. R. P. Hobbs. †774
—Pattern for a cast steel maknet ring. B. M. *958
power plants, Progress in. Fred. R. Low. *1590
progress in twenty-five years. Thomas Commerford Martin. *1594
tabulating machine applied to cost accounting, The. *1073
tests of power in drilling cast iron. See "Drilling."
workers, Course of lectures to. 1493
Electrically driven pipe threading machine. D. Saunders' Sons'. *235
-driven radial driller. Dreses, Mueller & Co.'s. *334
operated planer. G. A. Gray Co.'s. *401
Electricite, Cours d'. By H. Pellat. †452

PAGE

Electricity—Alternating Current Machines. By Samuel Sheldon and Hobart Mason. †854
and Magnetism and their Appliances, An Elementary Book on. By D. C. Jackson and J. P. Jackson. †1174
—Armature Windings for Direct Current Dynamos. By E. Arnold. †774
—Forming and trimming punch and die for insulation lining of socket shell base. Barney. *1421
from the atmosphere, Extraction of. 855
—Galvanic coloring of metal. 121
in cotton mills. W. B. Smith Whaley. 817
in shop practice, The rise of. 1585
—Induction Coils for Amateurs. †1319
—Standard Polyphase Apparatus and Systems. By M. A. Oudin. †775
—The weight of flywheels for alternating current units. J. Begtrup. *986
—Universal commutator bar gage. A Tool Maker. *271
Electro-magnet winding jig, An. Milwaukee. *1716
Elevation of a pump above its supply, Finding the. W. Osborne. 5
C. F. Schaeffer. *197
Elevating stock of blast furnaces, Old forms of apparatus for. B. W. T. *482
Elevator accident, An—A lesson in virtual velocities. 997
John E. Sweet. 1167, 1174
air cushion, Test of an. 1511
An improved. Michael E. Neenan's. *615
Compressed air oil. H. F. *211
safeties. Charles H. Pratt. 815
safety appliances. Wm. Baxter, Jr. *372, *404, *1224, *1306, *1330
Ellipse, A ready construction of the. W. S. Buvinger. *905
Ellipsograph. John M. Richardson. *1249
200 years old, An. *619
Embossing process in making ping pong balls, Celluloid. Joseph Misko. *1691
rolls, A special tool for cutting out large fiber washers for. Joseph V. Woodworth. *1720
Emergency outfit, A shop accident. 904
Emery, Crushed steel and steel. 1526
paper circles, Machine for applying glue to. C. H. Besly & Co.'s. *1108
wheel dresser attached to grinder. Perry Ransom's. 40
wheel, Grinder attachment for truing the. George Gorton Machine Co.'s. 41
wheel to use for large work, etc., A grinding attachment for small. C. Aliper. *956
Emperor William affiliates with merchants and manufacturers. 645
Employee, An employers' liability insurance company demands the discharge of an injured. 389
Employees from influencing legislation, Prohibition of government. 533, 597, 772, 997, 1031
Hospitals for. 1206
in testing department of General Electric Co., Nationalities of. *1256
of the Kilbourne & Jacobs Mfg. Co., Devotion of. 232
who apply for work elsewhere, Disclosure of. See "Confidence, An alleged."
Employer and employed, The relative position of. Edward B. Gilmour. 725
Employers and employees, Mutual deportment of. Eben Bones. 99
Joseph Dysart. 241
and employees, Minneapolis convention of. 1061, 1316, 1428
Employers' Association of Dayton, O., Report of. 695
Employment, Effect of discharge upon contract of. 100
The search for. W. 1262
Enameling in making large tanks, Flanging and. L. O. Danse. 1427
Engine—A locomobile burner press job. J. L. Lucas. *448
—A solar motor. 1516
A successful rotary. Hult Bros. Rotary Steam Engine Co.'s. *622
Alcohol. See "Alcohol."
An escape wheel cutting. A. H. Cleaves. *331
and a worthless boiler, A rusted. W. Osborne. 516
and boiler stories, Newspaper, Theodore. 493
and generator sets, Some details of direct-connected. William H. Bryan. 818
and pump lubricant, Tallow as an. W. Osborne. 1398

PAGE

Engine, Apparatus for obtaining a continuous record of the position of an engine governor and the speed of the. J. C. Riley. 1797
base casting illustrating skin drying, Large. Harris Tabor. *1597
builder's customer, Letter from an. 37
connecting rod links, Self-hardening steel milling cutter for slabbing. *1712
cylinder cock, Taking out broken locomotive. W. Osborne. 1020
cylinder lubricant, Graphite as an. 553
cylinder, Repairing a broken. H. M. Lane. 819
cylinders with cylinder covers arranged for easy removal, Tandem compound steam. *1018
driven alternators, Flywheel capacity for. Walter L. Slichter. 1797
"Engine driver to his engine, The"; "The coachman of the Skylark." (Poetry) 1233
Engine eccentric, A lost—Shop honesty. W. Osborne. 409
eccentric keyed with wire nails, An. Mac. *1277
—Explosion of a piston. 499
Facing curved flanges for pumping. Wabbler. *201
flywheel accidents, Racing as a cause of. 1367
flywheel hub, Repairing a cracked. J. Green. *1272
frames, Careless designing of. Peter H. Bullock. *1395
Friction clutch for gas, gasoline or oil. Casner Pulley Co.'s. *1062
Gas. See "Gas."
Gasoline. See "Gasoline."
governor balls, Turning. B. A. T. *479
governor with Renold chain, Driving Porter-Allen. *225
High speed "Corliss." A. Edward Rhodes'. 662
horse-power by gearing, Doubling. Y. Z. 1269
in the last quarter-century, Growth of the locomotive. O. H. Reynolds. *1625
indicators, Old steam. *513
—Laying out a three-throw crank. C. W. Putnam. *802
Locomotive. See also "Locomotive," "Railroad," etc.
load herself on a truck, Making the. Joseph V. Woodworth. 336
Overhauling a lumberman's locomotive. W. Osborne. 323
piston acceleration, A graphical determination of. J. N. Le conte. 818
piston rod break and quick repair, A wonderful. J. N. Germain. *1263
Position of thresher. (11) 1062
progress, Curves of steam. Sidney Graves Coon. *91
Putting a new cylinder on the tannery. W. Osborne. 795
raced, Why the. C. D. King. *352
Repairing a sawmill—Dunbar packing. W. Osborne. *94
repairing—Knocking of piston head and pillow blocks. W. Osborne. 621
room of blast furnace at Audunle-Tiche, Lorraine. Frank C. Perkins. *546
Safety stop in shop for. H. Goldsmith. 1398
shaft, Fastening a coupling to an. W. F. Harris. *1414
shaft, flywheel, etc., by peening, Straightening an. See "Straightening."
shop erecting floor, An. Canadian Rand Drill Co.'s. *1817
—Shop temperature affects the fit of a piston head. W. Osborne. 1193
Steam that would not drive an. I. W. P. 1171
tests, Report of committee appointed to codify and standardize methods of. 813, 1796
tests, etc., An automatic recording machine for. E. C. Oliver. *289
—The "meanometer" mean pressure computer. Barrow & Harding's. 1805
—The Slide Valve and its Functions. By J. Begtrup. †1559
The steam; cost of grinding piston rods. Prof. Sweet. *1586
—The teakettle dream. 416
valve gear, The Corliss. J. Begtrup. *127
valve, Mistakes in making an—Some little things that count. R. H. Jackson. 946
work, "Good enough"—Making piston rods and stuffing box followers. Tecumseh Swift. 961

PAGE

Engine work—Pins for gaging alinement with cylinder in erecting, pointer with screw, etc. I. W. Payler. *959
wreck in a paper mill, Steam. 501
yoke, or cradle, for drilling, Laying out a steam. C. W. Putnam. *802
Engines, Boring mill for gallery plates of. Allis-Chalmers Co.'s. *695
Diagram of thermal efficiency of different. *1819
Improved indicator cock for. Albert K. Mansfield. 817
in Glasgow, The Allis. 965
in the oil country—Ice in cylinder, babbitt in oil holes, etc. W. Osborne. *1646
in twenty-five years, Progress in steam—Speeds, types, efficiency, etc.—Engines of the Manhattan Elevated Railway. Fred. R. Low. *1590
—Progress in locomotive construction during the decade 1890-1900. 1381
Repairing—Exceeding orders to make work right. W. Osborne. 691
Stationary fire. 1380
The Balancing of. By W. E. Dalby. †1062
The Diesel and other—Gas engines and gas power. W. H. Booth. 1318, 1374
—The weight of flywheels for alternating current units; displacement curves. J. Begtrup. *986
Trevithick's and other early locomotive. W. H. Booth. 872
etc., Repairing—Valve, meat cutter engine, etc.—Getting work in hard times. W. Osborne. 663
Engineer, A hero and an—Rear Admiral Melville in the Arctic. 1836
and the hot sidewalk, The office building. 1284
captain, The. 916
in England, The consulting. 564
on American methods, A Manchester. 1459
"Engineer" on good enough work, The. See "Good enough."
Engineer, The earth and the. Justice Brewer. 667
The. (Poetry) 1175
The responsibilities of the educated. George S. Morison. 559
Training required by, and compensations of the. Gerald E. Flanagan. 1200
Use of the word. S. P. Y. 1832
Engineer's Pocket Book, Trautwine's Civil. †1870
Engineers, American Society of Mechanical—As to foolishness and ignorance. 354
and manufacturers at luncheon to Prince Henry. 355
Annual meeting of the American Society of Mechanical. 1795
See also 1556, 1662, 1726, *1794, 1804, 1806, 1837, 1868
R. H. Thurston. 1837
Gus C. Henning. 1869
Boston meeting of the American Society of Mechanical. 810, 820
See also 598, 739
Course of lectures to journeyman steam. 1493
In a month, Naval. 1236
In the American and British navies. 596
Library of the American Society of Mechanical. 358
Meeting of the Naval Architects and Marine. 1558, 1661
misrepresented in *Engineering*, The American Society of Mechanical. 1172
Sending in suggestions as to new constitution, etc., of American Society of Mechanical. 1349
Showing off a shop to the American Society of Mechanical. B. W. T. 706
James Vose. 1090
Spring meeting of 1903, American Society of Mechanical. 1788
Engineers' committees on the metric system, American Society of Mechanical. See "Metric."
conservatism and American locomotives, English. 413
house? Who will build the. 1724
instruments 200 years old, A box of. E. P. Buffet. *616
library, New volumes in the American Society of Mechanical. 773
meeting, suggestive of splitting up a foreman, Talk at the. Tecumseh Swift. 23
See also "Foreman."
Society, Meeting of the Indiana. 416
Standardization Committees, Reports of Mechanical. 813, 814, 1796

PAGE

Engineering advance, Naval—Its Influence upon sea power—Specialization, engineers, ships, machinery, sanitation, steam turbines, oil fuel, influence of education, the press, etc. Rear Admiral George W. Melville. *1572
college, Machine work of an. 68
education at Finsbury Technical College, John Perry. 1512
Education, Tenth annual meeting of the Society for the Promotion of. 885
experimental station, Bill for a naval. Tennille. 135, 566, 645
Index, The, Vol. III. †101
Insurance. 646
Joseph T. Ryerson & Son offer $1,500 a year to promote. 677
Manual, Steam (in French). By Henri Mathieu. †1805
Engineering News, Concerning the selection of matter for publication in the AMERICAN MACHINIST and the. 820
Engineering Periodicals and the Card Index. By H. W. Hibbard. †39
Practical Marine. By W. F. Durand. †39
Practice and Theory for Steam Engineers. By W. H. Wakeman. †534
Practice, Reference Library of Modern. American School's. †1773
Engineering Record changes ownership, The. 1692
Engineering reminiscences, Railroad: Taken for a tailor; the Forney locomotive; elevated railroad traction; curves. M. N. Forney. 1299
England. See also "Great Britain," "British."
Bracing up a shop in. Francis W. Shaw. 1714
Homes of workmen in. James Vose. 798
shop nomenclature in. Francis W. Shaw. 1863
The American tool business in. Charles Churchill. *1621
The consulting engineer in. 564
English eyes, American methods through. 235
iron works, Agreement not to restrict production in. 215
lathes. J. H. Ball. 22
markets, American goods in. 1516
scales—Scale or fillet gage. Cynic. *32
S. B. McQuade. 193
T. H. Foulston. *486
shops, Notes on—Messrs. Peckett; 20-inch driller of Humpage, Jacques & Pederson, Ltd.; E. G. Herbert's hack saw; Canadian tools; Clark's Engineering & Tool Co.'s heavy hollow spindle lathe; Alfred Herbert, Ltd.'s shop, etc. James Vose. *1737
view of American tools, An—Hard iron, automatic machines and bolts, new steels, comparisons of British and American tools and workmen, business criticisms, etc. William H. Booth. *1578
view of the American love of money, An. 1029
workman's adventure on an American lathe, An—Automatic feed. Rip Van Winkle. 1554
workmen on American lathes. Francis W. Shaw. 636
Envelope or file, Cost. Wilfred Bancroft. *1051
Equalizer for multiple voltage system at the Nordberg Mfg. Co.'s plant. *929
Erecting and shipping departments at new Allis-Chalmers shops, Cross-section of. *842
by better machining, Decreasing cost of. L. O. Danse. 1374
floor, An engine shop. Canadian Rand Drill Co.'s. *1817
work—Pins for gaging alinement with cylinder, pointer with screw, etc. I. W. Payler. *959
Erfinder, Winke Fur. By Robert Grimshaw. †39
Escape wheel cutting engine. A. H. Cleaves. *331
"Estimating is guessing." Grant's Gear Book. 336
Ether, Welding with acetylene and. 1869
Evolution of machine tools, The. A Cosmopolitan. 690
Exchange in Antwerp, A labor. 667
Excuses—A study in human nature. W. Osborne. 1118
Exhaust gases, A method of determining the temperature of gas engine. R. H. Fernald. 815
Exhibition. See also "Exposition."
at St. Petersburg, British—Hoping to profit by American tariff difficulty. 356

PAGE

Exhibition in London, Proposed exhibitors at the American. 455
of alcohol motors at Paris. 391
of motor boats in Germany 454, 699
of motors, Conduct of workmen taken to an. 995
Expander, A plastic pressure tube. Newall Engineering Co.'s. *298
Expanding and flanging machine, The Lovekin tube. Keystone Machine Tool Works'. *113
planer tool, An. C. W. T. *801
planer tool, An improved. John Scott. *196
Expansion joint, A large. Engineer. *1203
of steel in hardening, Contraction or. See "Steel."
Experiences of a chip maker, Early. W. Osborne. 1587
Experiment. See also "Test," "Tests."
Experiments on spiral springs. Chas. H. Benjamin and Roy A. French. 154
on the flexure of beams. Albert E. Guy. *54, *85, *116, *147
Experimental station, Bill for a naval engineering. Tennille. 135, 566, 645
work of a government, The military. Grahame H. Powell. 185
Experts in regard to framing laws, etc., Consulting technical. 589
Explosion of a mold, The. Tecumseh Swift. 912
of a paper machine roll. E. M. Cross. 735
Explosions, Boiler. Duplex. 270
of threshing machines. 1349
The Penberthy and other boiler. Duplex. 270
H. H. Lane. 380
Explosive, Story about a high—Liquid air treatment. 1021
Explosives—Military inventions. Grahame H. Powell. 257
Exposition. See also "Exhibition."
Astonishment caused by American automatic machines at the Paris. Z. 771
at Duesseldorf. 646, 773, *836, 855, 904, 964, *1441, *1445, *1820
Bright machine tool prospects of St. Louis. 1093
High power gas engines at the Duesseldorf. Frank C. Perkins. *1820
let, Contract for Machinery Building of the St. Louis. 566
Machine tools and mechanical appliances at the Duesseldorf. *1441
Frank C. Perkins. *1445
Machine Tools at the Paris. By Michel Svilokossitch. †998
Machinery at the St. Louis—Some new features. 611
Plans for the St. Louis. 306, 978
Power at the St. Louis. 724
Report that Krupp will decline to exhibit at the St. Louis. 1142
—World's Fair to be held in Manchester. 1061
Exposures, A diagram for photographic. F. W. Seidensticker. *1706
Extension for a planer platen, Rack. A. G. Children. *766
Extensometer, A roller. Gus C. Henning. 816
Eye and its care, The. C. Ridderhoff. 472, 498
I. W. Payler. *625
bolts, Dimensions of. Steelton. *1342
Erratum. 1382
doctor, The shop; magnetic eye pick. H. E. B. *1754
forming punch and die, An. C. H. Rowe. *625
glass strap dies. Frank Greiner. *1758
How to inspect one's own. A. H. Cleaves. 7

F

Face plate, The box. M. W. Leech. *948
plates and wax for lathe work, Wooden chucks and. P. A. G. *415
plates for the patternmakers' lathe. John M. Richardson. *467
Facing a gear bracket, Jig for. J. P. Appleby. *1757
curved flanges. Wabbler. *201
cutter, A special drive for a. H. E. B. *1417
drill press columns, Lathe footstock attachment for. H. Goldsmith. *1262
large pipes in the lathe. W. D. S. 1409
machines, one with traveling head, Two German. Gustav Wagner's. *1156
milling machine arbor collars and nuts true. *869, *871
Factory Inspector for 1900, Report of the New York State. 213
Faesch, John Jacob—A colonial ironmaster. E. P. Buffet. 409

PAGE

Fairbanks shops, Long terms of service in the. W. H. Sargent. 1425
Fall on to an elevator, A—A lesson in virtual velocities. 997
John E. Sweet. 1167, 1174
Fan driving with Renold chain. *225
Fans and piping for forges. Wm. Sangster. *586
Fasteners, etc., Punches and dies for box corner. Joseph V. Woodworth. *900, *940, *1116, *1192, *1311
Faultfinding, Unjustifiable—Allowances in patternmaking. Patternmaker. 1271
Faulty tools on good machines. Roger Haines. 25
W. R. G. 193
Fay & Egan and Lane & Bodley Companies planning building for their workmen. 1238
Feathers on vertical boring mills, Cast iron. Sartor Resartus. 1656
Federation and "labor exchange" in Antwerp, A. 667
The National Civic. 69, 100, 305, 451, 695, 1834
Feed for compound rest, Ratchet. J. Green. *1771
for drilling by chaining tailstock to carriage, Making. Faults. 1757
for engine lathes, Bodmer's differential. Howard A. Coombs. *370, 388
gear arrangement for the lathe, A new. Schumacher & Boye's. *557
gear for horizontal boring bars, A self-acting. C. Patterson. *376
J. A. G. Goulet. *881
millers, Positive. A Cosmopolitan. 580
A Voice from the West. 703
motion for the blanks, Fixture for forming taper tubes with. Moses G. Wilder. *90
Oblique slotting by combination. Frank Rattek. *489
Feeds and speeds of different tools, Tables for. Stanley H. Moore. *1857
Chains vs. gear-driven. S. T. Freeland. 732
in drilling. See also "Drilling."
Milling machine. P. V. Vernon. 1550
Feeding balls and inserting ball retainers, A machine for counting and. Billy Murphy. *402
sheet metal to dies. Joseph V. Woodworth. *1861
Feet on jigs, Use of. L. O. Danse. 1373
S. F. Arthur. *1863
Ferrules, etc., Automatic screw machine for making condenser. Alfred Herbert, Ltd.'s. *1195
Figuring, A few graphical methods of. W. S. Fanning. *62
Edgar H. Berry. *302
File, A technical index and. R. H. Soule. 818
and tool holder, A folding. George W. Bowers'. *917
Attachment for the. A. Pringle. *1751
Board drawing. Machinist. 1234
Catalog. Hill Publishing Co.'s. *786
Bell Crank. 1201
Cost envelope or. Wilfred Bancroft. *1051
jig, A. M. W. Leech. *485
making with gas furnaces. Fine. American Swiss File & Tool Co.'s. 120
etc., for tap orders, Tracer card. C. H. Besly & Co.'s. *1112
Files, Hardening. E. R. Markham. 1105
Filing and indexing periodical literature, A method of. C. J. M. 1688
See also "Indexing the AMERICAN MACHINIST."
case, Blueprint. M. M. *1086
catalogs. G. F. D. *369
crank pins. See "Pins."
machine, Bench. Henry Wright Mfg. Co.'s. *1142
system for office use, A. Henry M. Lane. 1799
the AMERICAN MACHINIST. Wilfrid S. Thompson. *1407
Fillet block; strengthening exposed edges of leather fillets. John M. Richardson. *1249
for patterns, Leather. A. G. Butler's. *215
gages. Cynic. *32
S. B. McQuade. 193
T. H. Foulston. *486
Fillets and rounds on patterns. Stevoe. 949
Filleting wooden patterns. Patternmaker. 342
Old Bob. 639
Plumb Bob. 808
Filter, The American oil. Burt Mfg. Co.'s. *1142
Finger end, Bandaging a sore. F. P. Avery. *274

PAGE

Finish—Avoiding useless work. 1571
directions on drawings. Sanford N. Moss. *433
Fred. S. English. 560
C. E. Coolidge. 875
C. W. Prentiss. *1056
of American machines, French criticism of the. Z. 771
Finishing lathe tool, A hand. Adam Herkner. *1688
Finsbury Technical College, Education at. John Perry. 1512
Fire by spontaneous combustion of oily waste. 1526
engines, Stationary. 1380
"Fit," Marking details to. Gerald E. Flanagan. *1266
Fit of Hendey-Norton lathe spindle, Test of driving. 413
"Fit, To." John Randol. 800
N. A. C. 1413
Fit, When to guarantee a. 336
Fits, Force and shrink. J. G. 209
Gages and table of standards for different kinds of. Newall Engineering Co.'s. See "Gages."
Gas engine piston head. W. Osborne. 1459
Making close running. Frank Greiner. 1280
—Marking "Full and "Scant." Gerald E. Flanagan. 880
Press and slip—Inclination and play of the calipers. Wm. A. Brooks. *26
Willard H. Cook. 194
P. V. Vernon. 340
Louis Kunz. 353
Elmer F. Tanner. 804
John E. Sweet. 1127
Table of actual variation in running and keying. Joseph Adamson & Co. *448
etc., A micrometer gage for allowances for. H. E. T. *1416
Fixtures, etc., Jobbing shop tools, devices. See "Tools."
for milling, drilling, etc., a bracket casting, Criticism of special. H. E. Brown. 64
Flaking stick. Joseph V. Woodworth. *4
Flange on the molding machine, Molding a pipe. Milwaukee. *1792
Flanges, Facing curved. Wabbler. *201
Flanging in making large tanks. L. O. Danse. 1427
machine, The Lovekin tube expanding and. Keystone Machine Tool Works'. *113
Flask for small grooved pulleys, Three-part. Francis W. Shaw. *635
Suggestion for cone pulley. Francis W. Shaw. 636
to avoid tucking, Shaping the. Geo. Haley, Jr. *1404
work, Steel frames instead of wood slip-overs for snap. C. Neil. 1408
Flasks, Combination iron. R. H. Palmer. *1106
Flat drill, flat Drills. See "Drill, Drills."
Flexure of beams, Experiments on the. Albert E. Guy. *54, *85, *116, *147
—The deflection of beams by graphics. Willibald Trinks. 1798
Floor, An engine shop erecting. Canadian Rand Drill Co.'s. *1817
Fluids, James Thomson's discoveries in. John Perry. 1512
"Flush," Meaning of. Francis W. Shaw. 1862
Fluting machine, Tap. C. H. Besly & Co.'s. *1110
Flux for brazing, A. Frederick Pich's. 40
Flying machines—Aerial Navigation. By Frederick Walker. †1462
shear, The. V. E. Edwards. 819
Flywheel accidents, "Racing" as a cause of. 1367
"Flywheel, An undershot." 39
Flywheel at Detrick & Harvey shops, Bursting of a. 534
by peening, Straightening a. See "Straightening."
capacity for engine-driven alternators. Walter L. Slichter. 1797
on a 36-inch gap lathe, Turning an 8-foot. Tecumseh Swift. 1654
hub, Repairing a cracked. J. Green. *1272
pattern, A quickly made. Rush. *1413
Flywheels for alternating current units, The weight of. J. Begtrup. *986
Wrongly balanced—Example of incompetence. Wm. H. Brooks. 33
Followers, Boring stuffing box. Tecumseh Swift. 961
Food products, Adulteration of. 644
Foolishness and ignorance, As to. 354
Foot, Old standards for the. *616
protectors for foundry workers. 740
Force by the slide rule, Finding centrifugal. E. J. Armstrong. 99
George F. Summers. *302
fits. J. G. 209

PAGE

Fore River Ship & Engine Co., Plant of the. 818
Foreign shop practice, Prof. Sweet and. A Cosmopolitan. 551
Foreman, Anyone good enough for a. I. W. P. 1275
By the help of the. Tecumseh Swift. 1721
dealt with a drunken workman, How a night. W. Osborne. 1859
Hard work of being. W. Osborne. 1476
Splitting up a. Tecumseh Swift. 23
W. A. Warman. 191
Joseph Dysart. 240
Sphinx. 241
Trigger. 417
L. O. Danse. 914
See also "Bonus."
The. E. R. Markham. 1084
Foreman's caliper swindle, The. W. E. W. 494
long service, A. 1119
Foremen, Gang bosses compared with. Wm. Lodge. 642, 645
in conspiracy—A difficult case. Frank Rattek. 65
Isaac Morgan. 65
X. W. Z. 65
J. C. Green. 65
H. C. P. 66
Wilfrid J. Thompson. 162
W. A. Warman. 162
"Thread." 162
W. S. Rogers. 163
True Blue. 301
G. E. H. 301
Needle. 301
Aldington. 381
—Giving and following orders. W. Osborne. 177, *578
John Randol. *439
John L. Bacon. 882
See also "Orders" and "Screw cutting, Catching threads in."
Instructions for. C. Neil. 1659
The management of. Eben Bones. 99
Joseph Dysart. 240
Forge and Machine Work, Manual of Instruction in. By Frank E. Ward. †39
for melting, A hand. Buffalo Forge Co.'s. *411
furnace, A down draft. Buffalo Forge Co.'s. *1444
press, Hydraulic. Otto Philipp's. *1644
Bell Crank. 1790
shop, Machinery guards in. *1187
Forges, Fans and piping and cost of. Wm. Sangster. *586
Old New Jersey. E. P. Buffet. *406
Forging a ratchet drill handle, Drop. Theodore. *955
—Cutlery by a new process. Joseph Misko's. 1063
handle bar clamp in the punch press, Cold. E. E. Minard. *1170
Micrometrical. Theodore. *806
of gun parts, Die sinking for drop. Theodore. *30, *212
steel, The imperative conditions for. H. F. J. Porter. 942
Forgings for snap gages, Drop. J. H. Williams & Co.'s. 774
Hollow. H. F. J. Porter. 904
Forks, Making spoons and. F. Candor. *936
Forked lever for planing and drilling, Laying out a. C. W. Putnam. *947
Formality, Too much. W. Osborne. 726
Forming machine, A special spring. Francis W. Shaw. *1375
operation, Gain by changing a punching and. W. H. Brooks. *705
tool, The. Census Bulletin. 1645
tools, Tools for shaping circular. H. L. G. *200
Formula for success, A. 698
for volume wanted—Graphic integration. Anonymous. *1456
Edgar H. Berry. *1679
Formulas and diagrams for semi-elliptic plate springs. See "Springs."
for crane girders. Samuel Odegaard. *67
for the flow of natural gas in pipes. William Cox. 401
(Referring to computer) 1515
Foss, Death of John Fairfield. 1383
Fossils, Three old—The diamond-point tool, rose reamer and box tool. Knocker. 344
W. H. M. "Minnesota." 807
Carroll Ashley. *1766
Foundation drawings for machine tools. C. D. McArthur. 1554
Foundations for buildings, The construction of. Gerald E. Flanagan. 437
Planer. L. H. Colburn. *1232
Stone or brick for. 525
Founding, Arsenic in brass. 525
bases for upright boilers. R. H. Palmer. *1
—Casting pipe direct from the blast furnace. Francis W. Shaw. 1866

PAGE

Founding hoisting drums, Designing and. G. E. Flanagan. *1508
C. F. Blake. *1791
Railroad brasses. C. Vickers. 1400, *1712, *1745
Foundry. See also "Mold," "Molding," "Melting," "Pattern," "Patternmaking," etc.
A co-operative plan under which molders own shares in a. Thos. Wathey. 210
A patented molding and casting process. Frederick Baldt's. 1206
A volcanic suggestion from the. Tecumseh Swift. 912
Adding fresh acid to solution for pickling castings. (9) 775
—An improved casting device with special provision for a riser. National Malleable Castings Co.'s. *453
and the first casting in America, The first. 1060, 1395
Lewis A. Leonard. 1166
at Milwaukee, Cross-section of new Allis-Chalmers. *844
—Calculating the weight of castings. C. M. Schwerin. *1538
—Combination iron flasks. R. H. Palmer. *1106
conditions—Lack of convenience of work, etc. Hugh McPhee. 983
Economy in the—Flour, plumbago, sand, coke, patternmaking, flasks, etc. P. R. Ramp. 1079
Gates, cards and plates. S. H. Stupakoff. *410
losses, Reducing—Good patterns; enough tools for molders; saving material on piston rings. R. C. Cunningham. 1230
Machine work done in the—Steel cores. 1141
Lucien I. Yeomans. *1263
Francis W. Shaw. *1760
-made cupola, A. C. D. King. *1553
Making gaggers for the. C. Neil. *1272
—Making, locating and holding shell cores. C. Neil. *1134
of General Electric Co. *1258
production, Increasing—Using unskilled labor. David Reid. 1159, 1172
progress in a quarter century—Lighting, cranes, buildings, cupolas, blowers, chemistry, charging, molding machines, handling iron, core ovens, flasks, cleaning, facing, etc. R. H. Palmer. 1749
progress in twenty-five years—Molding machines, skin drying, etc. Harris Tabor. *1596
—Setting, holding and drying cores. Old Bob. *1657
Staying out of the. 1461
—Steel casting statistics in Germany. 1351
—The manufacturing of malleable iron. Joseph V. Woodworth. 1009
trade school, The proposed. See "School."
Trouble in a—"We haven't got them castings." Mr. Bucks. 1207
—Wide variety of molding operations. S. H. Stupakoff. 327
workers, Foot protectors for. 740
Foundries, Hard iron in British. William H. Booth. *1579
Foundryman's formula for success, A. 698
Foundrymen's Association, Boston meeting of the American. 853
Association, Philadelphia Branch, Meeting of the National. 707
Fractions and mixed numbers, Squares of. Gerald E. Flanagan. 1343
Halving. Pinkney. 1866
on drawings, Convenience in expressing. Gerald E. Flanagan. 854
Subtracting. E. S. Timator. 1555
Frames, Blueprinting. Draftsman. *1022
Apprentice. *1231
by combination feed, Oblique slotting of locomotive side. Frank Rattek. *489
for core boxes. C. Neil. 1136
instead of wood slip-overs for snap flask work, Steel. C. Neil. 1408
France and America, Reckoning length of a day's labor in. 168
as a Paterson anarchist, Machinist arrested in. 468
Trade matters in; outlook for American machinery. Henry L. Geissel. 1059, 1349
Brown & Sharpe Mfg. Co. 1427
Franklin Institute and the metric system, The. See "Metric system."
Fraud in correspondence instruction. 1639
"Free trade activity." 564
Freight facilities curtailed. 1692
shipments, Secret rates for. 533
Freights on the Continent. F. C. C. 1790
French-Canadian, A letter of a. 37
French, Death of Aaron. 502
Death of Mrs. Bridget. 1175

PAGE

French locomotive shops, The tool equipment of. Z. 770
patent regulations, New. 238
steel swindle, The alleged. See "Steel."
Friction countershaft, Wheaton Machine Co.'s. *794
for a textile machine, Drawing of a—A hopeless case. H. *848
gearing, Paper and iron. See "Gearing."
of lubricating oils at high temperatures. 37
R. H. Thurston. 113
of spiral gearing—A graphical determination. Walter Ferris. *157
John Randol. 374
See also "Gear, Gears, Gearing."
of steel and iron the same, Coefficient of. H. F. J. Porter. 865
pulley, Semi-automatic. Hawkins Mfg. Co.'s. *1030
Would you call it frost or. See "Power needed."
Friend, The world's stand-by, My. W. Osborne. 657
Fritz banquet and medal, The John. 1694, 1638, 1639, 1724
did, What John. Charles T. Porter. 1658, 1660
John. (Poetry) Rossiter W. Raymond. 1661
Frost or friction? Would you call it. See "Power needed."
Frozen in engine cylinder, Water. W. Osborne. *1646
Fuel, Forests enough for. 1200
Oil. See "Oil."
Using tan bark for fuel. W. Osborne. 438
E. J. S. 704
"Full" and "scant." Gerald E. Flanagan. 880
Furnace, A down draft forge. Buffalo Forge Co.'s. *1444
—A hand forge for melting. Buffalo Forge Co.'s. *411
Casting pipe direct from the blast. Francis W. Shaw. 1866
damper, Simple device for opening a. S. B. *1454
grate lever fulcrum, Ways of molding a. Wm. Newton. *1121
Improved brass melting. A. J. and E. H. Weatherhead's. *647
with electric power at Audun-le-Tiche, Lorraine, Blast. Frank C. Perkins. *545
Furnaces, German inclined grate for boiler. Robert Grimshaw. *418
Old forms of apparatus for elevating stock of blast. B. W. T. *482
Furniture, Making worm-holes in "antique." 1043

G

Gage, A combination square and depth. M. E. Duggan. *1406
A depth. Wm. J. Sharp. *1408
A flat and a micrometer depth. A. C. F. *634
A handy depth. Theodore. *345
A handy scratch. John Koehler. *702
A new thread. A. B. Christman's. *216
A paper shrink. F. W. Unger. *952
A permanent snap; Limit gages. W. R. G. *34
A scratch block and surface. Theodore. *489
A vernier caliper as a hight. San Francisco. *765
An inside micrometer as a hight—Setting planer tool and surface gage. D. E. MacCarthy. *1279
attachment for micrometer, Depth. M. W. Leech. *481
block used in setting angle plate, etc. A. H. Cleaves. *7
Depth. M. W. Leech. *205
—Dial indicator testing by Cincinnati Milling Machine Co. *867
fit the work, Making the. Transmission. 762
Folding fillet and chamfer. T. H. Foulston. *486
for an accurately made button. M. W. Leech. *950
for circular saw, Cutting-off. John M. Richardson. *1249
for hydraulic accumulator, Water sight. Bell Crank. *1718
for lathe carriage, Adjustable multiple stop or. Edmund J. Bowers'. *597
for lathe centers, Adjustable. E. A. Banning. *804
for machining an air compressor valve, Arbor and ring. C. O. D. *1266
for setting calipers for a little more or less than standard, A micrometer. H. E. T. *1416
for setting shafts. A. H. Cleaves. *9

PAGE

Gage, Improved 29-degree screw thread tool. Brown & Sharpe Mfg. Co.'s. *500
Lathe indicator made from a steam. W. Osborne. *1156
of sheet metal, Depth. Carroll Ashley. *1766
—New setting instrument for planing keyways in shafting, testing twist drills, etc. Morris Chamberlain's. *998
Roughing. A. Bollinckx. *1345
standards, Holder for. A. Bollinckx. *341
system, The limit. W. H. Booth. 1558, 1692
Universal commutator bar. A Tool Maker. *271
Universal limit. Newall Engineering Co.'s . *1310
used at Westinghouse works, Large inside. H. Goldsmith. *938
Gages and calipers, Taper. W. H. Sargent. *202
Frank Rattek. *495
Morris Fulton. *629
James A. Brown. *632
I. W. P. 800
Elmer F. Tanner. *804
G. Schneider. 963
Chas. Heena. 1265
W. B. Mehl. *1415
Drop forgings for snap. J. H. Williams & Co.'s. 774
Fillet. Cynic. *32
S. B. McQuade. 193
T. H. Foulston. 486
Jig for holding snap limit. W. E. Hunter. *638
Limits to be allowed in limit. Joseph Adamson & Co. *448
New types of English adjustable—Standards for different kinds of fits. Newall Engineering Co.'s. *179, *1310
S. B. McQuade. 344
Jno. M. Newall. 626
W. H. Booth. 1558, 1692
Screw—Adjusting chasers for sizing plug. Isaac Morgan. *1136
Simple adjustable and renewable. M. W. Leech. *349
Gaggers for the foundry, Making. C. Neil. *1272
Gaging alinement with cylinder in erecting, pointer with screw, etc., Pins for. I. W. Payler. *959
the ends of segments. C. S. Beach. *1760
Gaiters for foundry workers. 740
Gallery-plate boring mill. Allis-Chalmers Co.'s. *695
Gang bosses. Wm. Lodge. 642, 645
Gaps in the edges of beams, Mistakes of builders in cutting. Gerald E. Flanagan. 994
Garcia." Reply to "Carrying a Message to. Kenneth Falconer. 730
Garrison, Death of Peter E. 1383
Death of William Fraser. 1031
Gas and gasoline engines, Points in setting up—Uniform pressure of gas; piping; ignition; water jacket. M. N. O. 343
and gasoline motor, The. Har De. *598
and other engines, Diagram of thermal efficiency of. *1819
and snakes, Natural. W. Osborne. 160
Coal teamsters boycott fuel. 177
companies, Merger, of Boston. 1383
engine cylinder jackets, To remove scale from. 821
engine—Entropy analysis of the Otto cycle. Sidney A. Reeve. 1797
engine exhaust gases, A method of determining the temperature of. R. H. Fernald. 815
engine, Friction clutch for. Casner Pulley Co.'s. *1062
engine igniter, A new. Detroit Motor Works'. 1661
engine pistons, Fitting. 1351
Cheroot. 1454
engine piston head fits. W. Osborne. 1459
engine started by pressing a button, A. 556
engine test, Working details of a. R. H. Fernald. 816
engine tests, etc., An automatic recording machine for. E. C. Oliver. *289
engine, The Maywood. *264
engine, The Reid. F. J. M. *549
engine, Use of money saved by a. W. Osborne. 1219
engines and gas power, Progress in—Premature explosions; gases; compression; the Diesel engine. W. H. Booth. 1318, 1374
engines at the Duesseldorf Exposition for blast furnace gas, etc., High power. Frank C. Perkins. *1820
engines belted to the same shaft, Two. Fred. C. Tygard. 191
B. A. T. 493
engines go, Making. T. A. B. 1057

PAGE

Gas engines, Making piston rings for. A. Bollinckx. *1414
George Woodbury. *1765
engines—Observations of a road man. T. A. B. 21
Fine file making with gas furnaces. American Swiss File & Tool Co.'s. 120
generator, A German acetylene. 771
in pipes, The flow of natural. William Cox. 401
(Referring to computer) 1515
piping, Proper sizes of. 301
Relative cost of coal and natural. 693
Gasoline engine experience—Examples of ignorance. R. Betterman. 16
engine—Neglect of relative position of cranks and cams. Wm. H. Brooks. 338
engine, Testing of an Otto. E. C. Oliver. *897
engine cylinder, The determination of the temperatures in a. E. C. Oliver. *982
Gates, cards and plates. S. H. Stupakoff. *410
Gathmann gun tests, The. See "Gun."
Gear blanks, Turret lathe arranged for turning and facing change. H. Goldsmith. *1747
Book, Good business practice from Grant's. 335
bracket, Jig for facing a. J. P. Appleby. *1757
Chasing a mistake about a. W. Osborne. 467
cover on molding machine, Mounting a. Geo. Buchanan. *1130
cutter, A stepped stocking. Gould & Eberhardt's. *423
Brown & Sharpe Mfg. Co. *561
Heinrich Meyer. 705
Gould & Eberhardt. 773
cutter and bevel gear shaper, Early English bevel. *585
cutter to the University of Illinois, Gift of a Brown & Sharpe automatic. 1806
cutting—Chart for compound indexing. 1374
cutting—Differential indexing applied on Brown & Sharpe milling machines. *1282
cutting inventions, Bodmer's. Howard A. Coombs. 370, 388
cutting machine, A Swedish worm, spur and spiral. Atlas Co.'s. *1540
cutting, etc., A lathe attachment for milling. Seneca Falls Mfg. Co.'s. *216
-driven feeds, Belts vs. S. T. Freeland. 732
generating machine, The Bilgram automatic bevel, *114
guard, Lathe. *1185
Is not true, For correct depth of cut when a. Robt. H. Lachmann. 1770
on the shaper, Cutting an internal. J. N. Germain. *198
practice, Twenty-five years' progress in toothed. 1584
ratios, Calculating back. A. C. 985
slide rule, Barth's. *1075
teeth at once, Cutting several. A. W. Jacobi. 16
teeth, The strength of shrouded. Wilfred Lewis. *145
Gears, A novel way of making small. John Graves. 196
and worms, Molding spiral. Francis W. Shaw. *913
Boring jig for bevel. J. P. Appleby. *1235
Cutting large internal. Ernest J. Lees. *1422
Fixture for testing bevel. H. Goldsmith. *1261
How to cut small. Quizzer. 1753
in the lathe, Cutting spiral. M. H. Westbrook. *668
Molding—Shaping the flask to avoid tucking. Geo. Haley, Jr. *1404
on the milling machine, A special rig for cutting bevel. Edward R. Conners. *991
Punching brass clock; Movable stripping devices. Wm. Doran. *1544
Thos. W. R. McCabe. 1659
Spiral. John Randol. *4, 374
F. A. Halsey. *62
Walter Ferris. *157
J. N. Le Conte. *296
Theodore. *418
W. H. Croker. *514
Geo. J. Meyer. 530
with one pattern, Molding two. S. H. Stupakoff. *411
with spur gear cutters, Cutting bevel. J. J. Stevens. 477
Gearing, About worm—Reading the AMERICAN MACHINIST. 1155
Attachment for milling worms on the planer. Adams Co.'s. *1546

PAGE

Gearing and belting. Complicated arrangements of. Francis W. shaw. *1517
See also "Belt."
—Fractional indexing. C. E. De Puy. *1506
Improved intermediate lathe. Pratt & Whitney Co.'s. *710
Nuttall. †742
Paper and iron friction. Edward C. De Wolfe. *754
George Harrington. 879
E. R. Plaisted. 1346
Planing helical: A workman's trick. Lathe Hand. *490
Speed-changing device. *565
See also "Speed."
up a lead screw and driving it for steep helical pitches. H. Du Rose. *799
—Variable speed device. George Richards & Co.'s. *788
Worm and Spiral. By F. A. Halsey. †1319
Geiger, Death of Leonard. 855
General Electric Co., A visit to the shops of the. Lyman B. Thompson. *1252
Electric Co. employees, Strike of. 598
Generator, A German acetylene gas. 771
sets, Some details of direct-connected. William H. Bryan. 818
Geneva stop for use in winding or unwinding a coiled spring, A. W. *910
German lathe tool tests. R. Grimshaw. 549
law against unfair competition. 1537
machinery trade; definition of a machine tool. 1853
patent decision as to type-setting machine. Simon W. Hanauer. 563
railroads, High speed with electricity on. 731
tariff and machinery trade matters. F. C. C. 1191
tariff on machinery. 1557
technical high schools and company management. B. Esmarch. 1378, 1380
view of American industrial superiority, A—"Americanism." 435
Germany, Effect of military caste in. 644
Outlook for American machinery in. Henry L. Geissel. 1836
Proposed electric trust in. 1870
Gib screw, New set-screw as a. W. A. Warman. *694
Gibs, Molding locomotive. C. Vickers. *1745
Gibbs, Death of James E. A. 1774
Gibraltar and Spain, Trade matters in Tangiers. Henry L. Geissel. 903
Gift of $1,500 a year by Joseph T. Ryerson & Co. to promote engineering. 677
propositions for paying workmen. Frank Richards. 1798
Gilding on steel, Imitating. 589
Girders, Considerations in the design of crane. Samuel Odegaard. *67
Notes on design of cranes and runway. A. D. Williams. *845
"Glasbrite" for cleaning windows. 917
Glasgow, The Allis engines in. 965
Glass covered desk, A. S. H. M. 561
S. P. Y. 851
making machine, A window. 917
To write on. 497, 757
works in New Jersey, Child labor at the. 644
Glasses and the care of eyes. C. Ridderhoff. *472, 498
I. W. Payler. *625
Glue pot, Heating a. A. G. Children. *947
Glue scraper. John M. Richardson. *1249
to emery paper circles, Machine for applying. C. H. Besly & Co.'s *1108
Good enough. 708
Tecumseh Swift. 961
B. 962
H. E. B. 1027
Kenneth Falconer. 1091
Gouges, Sharpening. John M. Richardson. *1249
Gould and the American Institute of Social Economy, Miss. 1383
Government does not make guns, The. 387
in case of patent infringement, No redress against. 499
supervision of corporations, Proposed. 1348
The military experimental work of a. Grahame H. Powell. 185
yards, Building naval vessels in; employees forbidden to influence legislation. 533, 597, 772, 997, 1031
Governor and the speed of the engine, Apparatus for obtaining a continuous record of the position of an engine. J. C. Riley. 1797
balls, Turning engine. B. A. T. *479
with boxes piled on it, An engine. C. D. King. *352
with Renold chain, Driving Porter-Allen engine. *225

PAGE

Governors, Elevator safety. Wm. Baxter, Jr. *1330
See also "Elevator."
Graduating a scale at home. H. E. B. *1415
tool, A. C. N. Hargraves. *849
Graduation lines. W. A. Warman and R. B. Cochrane. *15
M. H. Ball. 194
Graphic integration—Area, center of gravity, moment of inertia, etc. Karl G. Holst. *517
integration for volumes. Edgar H. Berry. *1679
Method of Solving Certain Questions in Arithmetic and Algebra, A. By G. L. Vose. †1319
Graphics. The deflection of beams by. Willibald Trinks. 1798
Graphical determination of the efficiency of spiral gearing, A. Walter Ferris. *157
John Randol. 374
See also "Gear," "Gears," "Gearing."
methods of figuring, A few. W. S. Fanning. *62
Edgar H. Berry. *302
method of finding counterweights for locomotive cranes. See "Cranes."
Graphite as a cylinder lubricant. 553
Grates, Furnace. See "Furnace," "Furnaces."
Gravity, moment of inertia, etc., Area, center of—Graphic integration. Karl G. Holst. *517
Grease cups, Multiple spindle drill for bottoms and nipples of; Countershaft with grease lubrication for loose pulley. C. H. Besly & Co.'s. *1111
separator, A. Duplex. *351
Great Britain. See also "England," "English," "British."
Britain, Standardization in. 1082
Britain, The American tool business in. Charles Churchill. *1621
Britain, The commercial situation in. 964
Grier, Death of John A. 1727
Grinder, A new surface. Safety Emery Wheel Co.'s. *1705
and grinding machine, Rise and progress of the tool. 1583, 1584
attachment for truing the wheel. George Gorton Machine Co.'s. 41
Automatic cutter. F. Gleason Machine Works'. *691
Electrically driven water tool. Ransom Mfg. Co.'s. *1093
Emery wheel dresser attached to. Perry Ransom's. 40
finishing edges of parallel clamp, Gardner double disk; grinding and polishing machine used in finishing shanks of long nut taps. *1109
for big lathe tool, Using universal. W. A. Warman. 191
Grinding and polishing attachment for twist drill. L. S. Heald & Son's. *1317
Improved disk. George Gorton Machine Co.'s. *500
Items met with in repairing a surface: Adjustment of sliding fit; adjustment for standard; squaring a spindle. A. H. Cleaves. *7
Motor-driven Gardner. *1557
Surface grinding attachment to universal. Frederick Hart's. *1041
Tests of abrasives on Gardner disk. 1047
The Walker automatic universal surface. *121
Thread milling machine and special cutter. Pratt & Whitney Co.'s. 1629
Vertical spindle disk. George Gorton Machine Co.'s. *1869
Grinders, The abrasive action of. Wm. Taylor. 1706
Grinding a large roll with a small lathe, Turning and. Chas. A. Trask. *704
—Aluminum for sharpening cutlery. 1790
attachment for small emery wheel to use for large work, etc., A. C. Aliper. *956
attachment, Surface. G. Schneider. *1122
bushings, Lapping or. (12) 1286
circular planer tools. Carroll Ashley. *419
drills theoretically correctly. W. A. Warman. 98, 304
D. Addie. 164
C. H. Buckley. 382
expansion taps. S. B. M. *1282
fixture, A handy milling and. B. W. *765
hack saws. A Sufferer. 489, 625
L. O. Danse. 625
H. G. Kellogg. 801
G. Schneider. 962

PAGE

Grinding machine, A new heavy. Landis Tool Co.'s. *1635
machine for locomotive piston rods, Gap. Norton Grinding Co.'s. *1629
machine, Piston-ring. J. E. Reinecker's. *1788
machines invented by Bodmer, Howard A. Coombs. 370, 388
machines, Twenty-five years' progress in. Brown & Sharpe Mfg. Co.'s., etc. 1584, 1620
materials—Crushed steel and steel emery. 1526
Novel steady rest for. W. E. Callaghan. *950
offered, Information about. 1869
out dies. Carroll Ashley. *1269
piston rods, Cost of. Prof. Sweet. *1587
tap threads. L. O. W. 18, 632
the central boss of milling cutters; grinding the face of arbor nuts. *870, *871
thread tool cutters, Holder for. H. E. B. *805
wood patterns. Old Bob. 1763
etc., flat drills. J. Cook. *195
Telbin. *629
J. O. B. 639
Grindstone, Cutting a steep pitch screw in. Francis W. Shaw. *488
Water supply and drain for the. A. K. S. *736
Grips for elevators, Safety. See "Elevator."
Grooves in long boxes, Tool for cutting oil. Joe Spahn, Jr. *1418
Locating opposite. N. A. C. *802
on planer and lathe, Cutting; a workman's trick. Lathe Hand. *490
H. Du Rose. *799
Growth. See "Progress."
Guarantee company, A patent. 234
Guard for the automatic, An oil. S. F. Arthur. *1767
for the jointer, A. C. Nell. *1022
Machine molding of a wheel. George Buchanan. *731
Guarding machinery against accidents. *1185
Guide for back end of hollow spindle, A chuck or. W. A. Bright. *1281
for letter stamping on steel, A. See "Stamping."
Guides or V's for machine tools, Inserted. J. J. Osgood's. *1063
Gun—Alleged libel on the Marlin rifle. 1442
breech, Lathe attachment for milling threads in; milling brass caps with formed cutters; counterbore with adjustable stop collar. H. Goldsmith. *1397
carriages recommended, Disappearing. 1382
designing at the Massachusetts Institute of Technology, A course in. 1174
—Incorporation of a company in Canada to make the Ross rifle. 5
Krupp's reported new. 851
parts, Die sinking for drop forging of. Theodore. *30, *212
plant, Sale of the Sandy Hook pneumatic. 996, 1173
shells, Magazine screw machine arranged for quick firing. Alfred Herbert, Ltd.'s. *1197
Sinking a drop-forge die for the breech-plate of a. Theodore. *212
tests, The Gathmann. Grahame H. Powell. *81
Nathan Rice. 671
A Witness of the Tests. 671
The 16-inch army. *1043, 1774, *1852
John M. B. Scheele. *610
work, Making drop forging die for. Theodore. *30
work—Splining tool for rifling. E. R. Markham. *492
Guns at Watervliet, Cost of making. 728
Breaking up old. 646
from China, Some. *791
—Military inventions. Grahame H. Powell. 257
Proposed army school for instruction in heavy. 135
The Government does not make. 387
Guy, In praise of Mr. Tecumseh Swift. 1313
Gyroscope, The—Wonderful newspaper discoveries. 167

H

Habit of putting stocking on same foot first. 1382
Habits—Lathe tailstock screws, belt shifters, unbalanced handles, etc. W. Osborne. 1366
John E. Sweet. 1491
L. O. Danse. 1652
Francis W. Shaw. 1771
Hacksaws. See "Saw," "Saws."
Half holes, Drilling. A. N. Nay. 627
G. Schneider. 962
Halving fractions. Pinkney. 1866

PAGE

Hammer, A rock drill used as a steam. W. A. Zee. *1087
at the Bethlehem Steel Works, Dismantling the big; The Midvale hammer. 416
Tecumseh Swift. 449
Ferd. Wertheim. 529
U. Peters. 670
heads, Old English forge. 165
The "Ideal" soft. F. L. Montgomery's. 1869
Hammers and vise jaws, Molds for babbitt. H. T. G. *478
Ferd. Wertheim. *1420
Hand, A good machinist with only one. C. W. Putnam. *465
and brain work. See "Brain."
and machine work. Carroll D. Wright. *1576
dog and sub-centers, Combination. Willis G. Young's. *1237
Hands, The use of both. 1217
Handle, Drop forging a ratchet drill. Theodore. *955
for a needle. Wilfrid J. Thompson. *1407
for a templet, A. Joseph V. Woodworth. *758
Handles—For standard tapers for the tangs of woodworkers' tools. Woodworker. 957
John E. Sweet. 1128
Jig for drilling and tapping ball. L. E. W. *20
B. M. *625
Jig for drilling ball. Geo. J. Meyer. *1120
Unbalanced. L. O. Danse. 1652
See also "Habits."
Hard alloy of copper, A. 877
times, Getting work in. W. Osborne. 663
Hardened copper pickaxe dug up, A. 454
Hardening—A chilling plate press. J. W. *911
A job of case—Using boxes and barrels; chain links. E. R. Markham. *1537
—A tempering tank. D. E. M. *1136
and bluing small steel parts, Case. Theodore. *338
—Discussion on annealing and tempering steel. 1801
and tempering steel, Tanks and process for. William R. Bennett's. *103
armor plate, New method of. 1142
Case and other. E. R. Markham. *10, 84, *127, *180, 263, 321, *753, 761, *876, *902, *1077, 1105
See also other entries.
—Color experiment in tempering. Alois Platt. *1830
—Color in tempering. L. O. Danse. 1263
Contraction or expansion of steel in. See "Steel."
copper, Process of. 589
—Cracks in steel; a reheating tank. E. R. Markham. *1077
—Device for tempering with automatic alarm. *528
—Drawing the temper; a scheme for tempering. E. R. Markham. 1163
A. M. Gordon. *1455
flat drills. F. W. Shaw. 792
Heating in bath for. E. R. Markham. 321, 1105
Har. D. Ning. *631
Iron, New German process for. 102
locally, to a line or dot, etc., Case. L. O. Danse. 911
Seneca. 1025
J. E. B. 1164
Cherry Red. *1490
Machinist. *1865
long reamers. E. R. Markham. 761
Cherry Red. *1490
metals and tempering cutlery steel, Processes for. Mary J. R. Greenman's. 1525
mixture promised to make drill go through file. Cherry Red. 1234
of taps, milling cutters, etc., Combined oil and water. John L. Bacon. *325
Har. D. Ning. *631
plant, Installing a steel. E. R. Markham. *753
plaster of Paris. 563
rotary cutters, Apparatus for. Henry Liebert's. *741
small springs. J. R. Price. 1418
steel tools, Set of self-. Joseph V. Woodworth. *959
—Tempering a chisel. Easy. 1377
—Tempering wood planer knives. 329
thin cutters. E. R. Markham. *902
Threading taps to allow for shrinkage in. Otto Eckelt. *478
tool steel rings. E. R. Markham. *180
tool steel rolls. E. R. Markham. 263

PAGE

Hardening trick, A steel. Cherry Red. 951
without tempering. Har. D. Ning. *631
etc., mills and counterbores. E. R. Markham. *876
Hartley, Death of Marcellus. 102
Harvesting machine trust, The. 1204
Hatchet planimeter, An improved arrangement of the. Frank B. Kleinhans. *1017
M. E. 1314
Havens, Death of William R. 566
Head, Facing machine with traveling. Gustav Wagner's. *1156
universal, Scheme for making the universal dividing. W. A. Warman. *698
Headstock boring fixture. H. Goldsmith. *789
Header, Converting an old hand lever punch into a bolt. R. W. J. Stewart. *450
Heat from Steam to Water Through a Partition, The Transfer of. †440
resistance the reciprocal of heat conductivity. Wm. Kent. 1797
The action of iron and steel under different degrees of. J. J. Wilmore. *1849
The structure of steel as affected by. F. Massa. 733
Wm. Metcalf. 734
Heating and Ventilating Buildings. By R. C. Carpenter. †1662
and Ventilation, Steam. By W. S. Monroe. †1031
compressed air, Economy due to re-. W. G. Edmondson and E. L. Walker. *1080
Equivalents of coal and wood for. 321
of bearings, Paint that shows. 1168
plant in Germany, Long distance steam. 707
etc., Straightening a shaft by. A. Pidgen. 880
Cheroot. 1085
Hebrew Technical Institute—A new metal working school. 499
Helical casting, Fixture for drilling holes in a. Joseph V. Woodworth. *758
grooves, Planing: A workman's trick. Lathe Hand. *490
pitches, Gearing up a lead screw and driving it for steep. H. Du Rose. 799
Hendey Machine Co., Notes in shops of. See "Mechanic, Notes by."
Hendricks' Commercial Register of the United States. †1526
Henry, Engineers and manufacturers at luncheon to Prince. 355
Hickey, Death of George W. 535
Hinge making in an old shop. C. H. M. *630
Hinges, A complete set of dies for the manufacture of sheet metal. Joseph V. Woodworth. *940
Hoarding private stocks of tools. X. I. W. Payler. 34
Hoe's apprentice school, Commencement at. 339
Hoist at Duesseldorf Exposition, Electrically driven. Siemens & Halske and Friedrich Wilhelmschutte Mining Machinery Corporation's. *1441
New Electric. Sprague Electric Co.'s. *1205
Special electric. Pawling & Harnischfeger's. *89
Hoists on cranes, Chain and wire rope for. *1010
Hoisting drums, Designing and casting: anchors for crane chains. G. E. Flanagan. *1508
C. F. Blake. *1791
machinery, A large differential action reducing valve for mine. Nordberg Mfg. Co.s. *1161
plant, Repairing a mine. B. W. T. *1135
Holder, A folding file and tool. George W. Bowers'. *917
A self-adjusting screw lathe die. A. H. Cleaves. *482
A thread die. Adam Herkner. *342
A thread die. H. T. C. *912
for gage standards. A. Bollinckx. *341
for grinding thread tool cutters. H. E. B. *805
for hardening rings. E. R. Markham. *181
for screw machines, Tap and die. F. C. Tyler's. *1662
Holders for flat drills for turning. F. W. Shaw. *792
for thin work on band saw and buzz planer; holder for pencil on divider leg. John M. Richardson. *1249
Tool. See also "Tool," "Tools."
Holding a row of round pieces for milling. J. Schuring. *1760
punches and dies. Toolmaker. *1487

PAGE

Holding small plates, cylindrical pieces, etc., Milling machine fixtures for. E. E. Winship. *1313
work with a magnet. George Drachus. *1407
Hole, A student draftsman's idea of a tapped. C. H. Norton. *981, 1060
A triangular center. "Dibs." 353
John Graves. 417
Francis W. Shaw. 1125
half in one piece and half in another, Drilling a. A. N. Nay. 627
G. Schneider. 962
Holes, A stepping jig for drilling a lot of small. Joseph V. Woodworth. *2
at right angles, Punching four. "Needle." *192
smoothly, How three patternmakers tried to countersink. A Rounder. 1281
Test indicator attachment for truing. J. F. B. *29
where work is overhanging, Transferring. A. H. Cleaves. *8
with a small driller, Making large. Joseph V. Woodworth. *2
Holidays, Some men in the navy object to some. 454, 566
Hollow forgings. H. F. J. Porter. 904
mill, An adjustable. M. W. Leech. *485
mill with inserted cutters, A. Roger Haines. *640
Home for inventors, A. 1142
made horizontal spindle boring machine, A large. A. L. Ide & Sons'. H. F. *1046
made machine tools, Cost of. 1092
Tecumseh Swift. 1202
Sartor Resartus. 1655
Homes in Essen, Workmen's. 1317, *1448
of foreign workmen at St. Johnsbury, Vt. W. H. S. *1752
of Italian workmen. Tecumseh Swift. *641
of workmen in England. James Vose. 798
Prizes for beautifying workmen's. 1019
Homogoblinometer, Patent for a. 1062
Honesty, Shop. W. Osborne. 409
Hooks and clamps, Core box. C. Neil. 1136
Hopkins, Death of William. 312
Horne on Far Eastern trade, Interview with F. W.. 886
Horse-power, Shop run by. B. W. T. *205
Hospitals for employees. 1206
House and restaurant for workmen planned by Cincinnati companies, Boarding. 1238
Who will build the engineers'. 1724
Houses of workmen. See "Homes."
Housings, Milling the jaws of mill. A Pittsburgh Machinist. *1134
Hub, Enlarging a hole in a pulley. Mechanicus. *491
Hubs, Clamp. Tim Handyside. *883
C. L. B. *1058
on shafts, Hydraulic press for. Messrs. Young's. *741
Humbug. See "Swindle."
Hunter, Death of Joseph P. 70
Hutchins, Death of Edward S. 102
Hydraulic beam shearing machine at the Duesseldorf Exposition, Electro-. Kalker Werkzeugmaschinen Fabrik's. *1446
bushing press, A 35-ton. Watson-Stillman Co.'s. *1539
device for adjusting heavy work on machine tools. Henry Hess'. *443
installation, A small—Pump, watertight gage for accumulator, etc. Bell Crank. *1718
Motors and Turbines. By G. R. Bodmer. †775
packings, Press for forming leather. A. D. Gage. 99
Wm. H. Brooks. *303
press for hubs on shafts. Messrs. Young's. *741
presses, A new principle in——Hand, power, bookbinders' and forge presses; stationary and portable riveting machines, portable staybolt cutter, etc. Otto Philipp's invention. *1641
Bell Crank. 1790
pressure press work, Huber system of. Paspra. 765
ram, To find pressure necessary for. (10) 775
sheet shearing machine at the Krupp works. *839
testing, Precautions in. G. E. Flanagan. 1693
Hydraulics—Success in long distance power transmission. F. A. C. Perrine. 1447
Hydraulically operated punch for cutting large washers. C. Patterson. *1024
Hypnotism—Talk on splitting up a foreman. Tecumseh Swift. 23
See also "Foreman."

I

Ice, Cooling drinking water with. Frank Greiner. 1279
from rails, An inventor of a device for removing. W. Osborne. 1305
in engine cylinder. W. Osborne. *1646
-Making, Refrigeration, Cold Storage and. By A. J. Wallis-Taylor. †854
Idea, An—What is it worth? W. Osborne. 1739
Idleness, Municipal insurance against. 1365
Igniter, A new gas engine. Detroit Motor Works. 1661
Ignorance, Examples of shop. S. B. McQuade. 194
of shop matters, Popular. W. Osborne. 870
Illinois, Labor Statistics of. †678
Imhauser, Death of William. 566
Impedimenta in machine shops. Tecumseh Swift. 1166
Impossible in die work, Doing the. J. L. Lucas. 797
Improvement, The American League of Civic. 278
Improvements, The slow acceptance of. Tecumseh Swift. 97
Improving, A lathe and appurtenances which needed. H. O. Bow. *1268
bushings while cheapening. T. A. B. *21
Inclinometer 200 years old, An. *618
Index, American Trade. National Association of Manufacturers' †453
and file, A technical. R. H. Soule. 818
card, A sample catalog. G. F. D. *369
card for cataloging small machine parts. L. P. Alford. *1365
Catalog file with card. Hill Publishing Co.'s. *787
Bell Crank. 1201
Engineering Periodicals and the Card. By H. W. Hibbard. †39
for business cards, The card. C. S. Beach. 527
plate, Making an. H. T. G. *953
Section A of the Mechanical—Machine Tools and Metal Working Machinery. †966
system in the purchasing department, Some details of the card. F. H. Leland. *1482
The *Engineering*, Vol. III. †101
Indexes for reference books, Making thumb. Gerald E. Flanagan. 854
Indexing—A filing system for office use. Henry M. Lane. 1799
applied on Brown & Sharpe milling machines, Differential. *1282
arrangement of jig for drilling a circular plate. Cleveland. *1026
books and papers; card index. Fred H. Colvin. *1712
drawings and material. *1824
drawings. See also "Drawing Room Notes" and "Drawings, A decimal."
drill jig. H. Goldsmith. *1261
fixture for machining clutch collars, etc., An. Carroll Ashley. *1419
Fractional. C. E. De Puy. *1506
on the milling machine, Chart for compound. 1374
—Scheme for making the universal dividing head universal. W. A. Warman. *698
the AMERICAN MACHINIST and other periodical literature. A Constant Reader. 1454
Frank Greiner. 1656
C. J. M. 1688
Kenneth Falconer. *1717
Henry Hess. 1792
etc.—Recording prices of goods purchased for a specific use. Kenneth Falconer. *1648
India seek their education? Where shall the youth of. 738
Indicator, A home-made lathe. W. Osborne. *1156
A micrometer surface. M. W. Leech. *476
A new test. H. A. Lowe's. *1745
A test. W. H. Lehman. *1123
Attachment for a test. M. W. Leech. *197
attachment for truing holes, Test. J. F. B. *29
card and temperature volume diagram for a gasoline engine. E. C. Oliver. *982
cock for engines, Improved. Albert K. Mansfield. 817
diagrams of an Otto gasoline engine. E. C. Oliver. *899
diagrams, The meanometer for computing mean pressure from. Barrow & Harding's. 1805
gear of King-Riedler air compressor. *1477
Lathe. S. B. M. *767
work, etc., An automatic recording machine for. E. C. Oliver. *289
Indicators used for testing at works of the Cincinnati Milling Machine Co., Dial. *867
Old steam engine. *513
Induction Coils for Amateurs. †1319
Industrial development, Canadian. C. 1817
efficiency, The maintenance of—Alleged corruption in British workshops. 1140
questions, Commission from England to study. 1526
Industries have begun, How local. 1571
Localized. 1580
Inertia, etc., Area, center of gravity, moment of—Graphic integration. Karl G. Holst. *517
Information, Giving equivalents in—Accuracy in boring pulleys, etc. See "Boring pulleys."
sheet under premium plan. Clinton Alvord. *1165
Ingot mold. Prof. John E. Sweet's. *1349
Injectors, A new principle in double tube. Francis Sticker's. *231
Injunction bill fails, Anti. 997
Ink bottle, A non-spilling. A Reader. 133
bottle holder, An. A. B. Christman's. *215
bottle stopper handle, Shaping the. S. C. Heibe. 382
for marking blueprints. F. W. Harris. 164
E. R. Plaisted. 380
Gerald E. Flanagan. 853
Preparing tracing cloth for. A Reader. 1056
Inks in the Patent Office. 1773
Inquiry credits to the AMERICAN MACHINIST. Geo. Gorton Machine Co.'s. *743
Inspecting lathes, Assembling and; inspector's report. H. Goldsmith. *789
Inspection, Trouble with. Inquirer. 1087
Instruction in Forge and Machine Work, Manual of. By Frank E. Ward. †39
Instructions. See "Orders."
Instrument in machine shop practice, The use of a surveying. Charles C. Tyler. 1798
Instruments 200 years old, A box of engineers'. E. P. Buffet. *616
Insulated flexible shaft coupling, An. George V. Cresson Co.'s. *454
Insurance against unemployment, Municipal. 1365
company demands the discharge of an injured employee, Employers' liability. 389
engineering. 646
policies, Electrical paper offers accident. 1200
Integration for volumes, Graphic. Edgar H. Berry. *1659
Graphic—Area, center of gravity, moment of inertia, etc. Karl G. Holst. *517
Interchangeable chucks. Machinist. *1403
"Interchangeable," Meaning of. L. O. Danse. 1373
Interchangeable racks and pinions, Calipering. E. E. Winship. *25
Internal work on the shaper and planer. See "Tools."
Invention—An idea—What is it worth? W. Osborne. 1739
Practicalizing an—A coin assorter. J. A. Webster. *1137, 1140
for catching threads in screw cutting, Old. Howard A. Coombs. *609
Inventions, Inventors. See also "Patent," "Patents."
Military. Grahame H. Powell. 257
of J. G. Bodmer, Machine tool. Howard A. Coombs. *369, 388
Some early planer. H. A. Coombs. *11, *151
Some ingenious—A non-reversible screw; arrangement for slotting with a milling cutter; washers made without waste of material; a continuous working tap. Howard A. Coombs. *181
—The military experimental work of a government. Grahame H. Powell. 185
help the old, How the new. Prof. Pupin. 1162
Inventor, Helping an. W. Osborne. 1305
of a car coupler and a cyclone arrester. Chas. W. Shartle. 763
Robert Trevithick, an unappreciated. 872
The revolutionary. Edward Atkinson. 757
who did not keep posted, An. D. E. M. 957
Inventors, A home for. 1142
of one town, The. 387
Points for (in German). By Robert Grimshaw. †39
Invitation from the Carborundum Co. 165
Iron and American tools, Hard foreign. William H. Booth. *1578
Iron and machinery steel, Case hardening wrought. E. R. Markham. *127
See also "Hardening."
and Steel Association, Report of the American. †1031
and steel industries, Census statistics of progress in the. 1543, 1599
and steel under different degrees of heat, The action of. J. J. Wilmore. *1849
Cast. By W. J. Keep. †742
feathers, Cast iron. Sartor Resartus. 1656
for rolling threads, English and American. L. O. Danse. 1523
foundry and casting in America, The first. 1060, 1395
Lewis A. Leonard. 1166
furnace with electric power at Audun-le-Tiche, Lorraine. Frank C. Perkins. *545
furnaces, Old forms of apparatus for elevating stock of. B. W. T. *482
manufacture, Growth of. Archer Brown. *1598
Melting scrap sheet. (1) 69
New German process for hardening. 102
or steel, Pasting paper to. 1548
Prejudice against steel in favor of. H. F. J. Porter. 865
Shrinkage of wrought. Perseverance. 491
specified by student draftsman, Wrought. C. H. Norton. 981, 1060
steam pipe, Stretching a cast. Geo. J. Meyer. *764
The manufacturing of malleable. Joseph V. Woodworth. 1009
The Metallurgy of Cast. By Thomas D. West. †101
trade, A feature of the world's. 245
Trades for 1900, Statistics of the American and Foreign. By James M. Swank. †356
wanted, Methods of analysis for cast. 312
works, Agreement not to restrict production in English. 215
works at Old Boonton, The. E. P. Buffet. *406
Isometric circle, Drawing the. Rube. *444
Italian workmen, Houses of. Tecumseh Swift. *641
Italy, Outlook for American machinery in. Henry L. Geissel. 1836

J

Jack, Lifting power of a. (6) 500
Planer. Armstrong Bros. Tool Co.'s. *500
Jackscrews, Turning a heavy tank half around with. Sailer. *915
Japan work. Trouble with. Inquirer. 1087
Japanese boy, Scale made by a. S. B. McQuade. *193
steel works, Government aid for. 1854
Jaws, Aluminum vise. Z. Y. X. 35
in mill housings, Machining the. A Pittsburgh Machinist. *1134
Jewelers' work, Punching and forming dies for. Frank Greiner. *590
Jewett, Death of Leonidas C. 775
Jig, A file. M. W. Leech. *485
A magnet winding. Milwaukee. *1716
A valve slotting. Roger Haines. *1273
bushings, Making small laps for drill. H. A. N. A. C. 804, *1413
buttons, Device for locating. C. N. Hargraves. *849
clamps, Compressed air for drill. L. O. Danse. 1523
design, Points in—Feet; bushings; meaning of "interchangeability"; decreasing cost of erecting by better machining, etc. L. O. Danse. 1373
S. F. Arthur. *1863
for bevel pinions, Boring. J. P. Appleby. *1235
for drilling and countersinking. Joseph V. Woodworth. *664
for drilling and tapping ball handles. L. E. W. *20
B. M. *625
for facing a gear bracket. J. P. Appleby. *1757
for holding snap limit gages. W. E. Hunter. *638
for triple crank centers. C. W. Putnam. *805
holes "same as" those of another, Spacing. N. A. C. 1413
Jigs, Drill. See also "Drill," "Drilling."
Milling. See also "Milling."
on the milling machine, Boring; correcting a jig to 0.0002 inch. H. Goldsmith. 1114
C. A. Hargraves. 1403

PAGE

Job data book, progress card, etc., under premium plan. James Rowan. *49
Clinton Alvord. *1165
Different views of a machine shop —Turning an 8-foot flywheel on a 36-inch gap lathe. Tecumseh Swift. 1654
shop considerations—Men, customers, cost, hurry, etc. 1801
shop, Starting a. W. Osborne. *1336
wanted. Mike Lunkhead. 1122
Jobbing and manufacturing in the same shop. Junior Boss. 1458
S. L. Bley. 1686
shop methods, Some: Cutting a coarse pitch screw; making thin threaded brass rings; making large holes with small driller; a stepping jig for drilling a lot of small holes; makeshift device for drilling holes in planer bed; spring winding; making spring collets, etc. Joseph V. Woodworth. *2
shop problems, Some. 38
Bell Crank. 210
Johnson, Death of Job. 599
Death of Prof. R. B. 967
Joint, A simple universal. Cosmopolitan. *1722
in indexing shaft of Bilgram automatic gear generating machine, Universal flexible. *116
Joints, Pipe. See "Pipe."
Jointer, A guard for the. C. Neil. *1022
or buzz planer, To improve the wood. Billy Murphy. *451
The Oliver hand. American Machinery Co.'s. *1452
Jolly, Death of James. 535
Jones, Death of Edward R. 102
Journal. See also "Newspaper," "Newspapers," "Paper," "Papers," "Press," "Print," "Publication," "AMERICAN MACHINIST," etc.
to its advertisers, Relation of a. 847
Turning a large. Edward De Hart. 1753
Journal's independence in publishing the news, A music. 710
Journals, etc.—Founding railroad brasses. C. Vickers. 1400, *1712, *1745
The humbug trade. See "Swindle."
Some points about babbitting. F. Wertheim. 234
E. R. Plaisted. *591
Value of technical. 416

K

Kegs, Shop. Cleveland Wire Spring Co.'s. *357
Kelvin at Columbia University, Lord. 645
on the metric system, Testimony of Lord. 645
Key, Handle for a templet made of a. Joseph V. Woodworth. *758
Keys in track wheels, Fastening. R. A. L. *481
Mining Machinist. *800
Strength and proportion of. Frank B. Kleinhans. *1451
Keyed with wire nails, An eccentric. Mac. *1277
Keyseat rule, A. C. W. Putnam. *34
I. W. Payler. *339
rule blocks. Sawyer Tool Mfg. Co.'s. *565
Keyseats on triplex cranks, Laying out. C. W. Putnam. *1411
Keyseater type, A draw stroke slotter of. Baker Bros.' *554
type, Two drawstroke shapers of. Baker Bros.' *785
Keyseating in the power press. Joseph V. Woodworth. *758
machine, Improved Colburn. Baker Brothers'. *186
Keyway cutting—Locating opposite grooves. N. A. C. *802
in a long sleeve, Planer tool for cutting a. H. Goldsmith. *1116
Keyways, A test bar for. I. W. Payler. *959
after wheels, Shipping. S. B. McQuade. 194
Chuck for holding shafts in milling. C. M. *1271
in a crank disk, Duplicating the laying out of. M. H. Ball. *799
in shafting, etc., New setting instrument for planing. Morris Chamberlain's. *998
in small collars, etc., Cutting. W. R. G. *1762
Kicks and kickers. W. Osborne. *1646
Kit of an English machinist. I. W. P. 800
Knapp, Death of Joel. 502
Knives, Tempering wood planer. 329
Knocks of piston head and pillow blocks, Remedying. W. Osborne. 621
Knockdown steamboat construction. 1013
J. W. M. 1089

PAGE

Knowledge, A little. R. H. Jackson. 1691
"Knows it all," The man who. 884
Knows or does, Payment for what one. 1351
Knurling laps to enlarge them, Tool for. W. E. Callaghan. *1132
tool, A resilient spinning or. *453
trick, A. M. W. Leech. *485
Knurls at once, Cutting several. A. W. Jacobi. 16
Kowalewski, Death of Eugene A. 855
"Kroonland," The. 966
Krupp, Death of Alfred. 1727
for forgings, Prices asked by. 1173
The attacks on Herr. 1774
will decline to exhibit at St. Louis, Report that. 1142
works, American naval officers allowed to inspect. 855, 964
works and the Duesseldorf exhibition, The. *836, *1447-1450
workmen, Homes of. 1317, *1448
Krupp's reported new armor-piercing projectile. 851

L

Labor affairs in U. S. Steel Corporation. 677
affairs—The odd arbitrator. H. M. Leland. 1402
—Agitation for higher wages; Effect of combinations on wages. 533
at the glass works in New Jersey, Child. 644
Commission from England to study relations of capital and. 1526
Compensation of skilled. John Richards. 658, 676
day, Length of. See "Day."
Effect of the use of machinery on the welfare of. 596
"Labor exchange" in Antwerp, A. 667
Labor incident of the Kilbourne & Jacobs Mfg. Co. 232
—Machinists' strikes. See "Strikes."
organization, arbitration, wage plans, length of day, etc., discussed at meeting of National Civic Federation. 1834
organizations in France, Rival. 1316
other than local, Employing. 1599
question, Some phases of the. Col. James Kilbourne. 1428, 1430
—Report of Employers' Association of Dayton, O. 695
—Right to strike upheld in New York. 533
-saving machinery, The machinist and. 1556
Statistics of Illinois. †678
—The National Civic Federation. 69, 100, 305, 451, 695, 1834
The relation of the public and. Charles Zeublin. 1430
—The relative position of employer and employed. Edward B. Gilmour. 725
union, Intimidation against organizing negros into a. 69
Laboratory notes, Metallurgical. H. M. Howe. †1805
work at Finsbury Scientific College. John Perry. 1512
Lace-making machine, Reported invention of a. 501
Lacing, A sample of belt. W. A. Sylvester. *797
Ladles, Babbitt. Fred. Wertheim. *1421
Lagging, Endless belt with wood. Walter Ferris. *945
Lamp, An English safety. 1803
outside socket shells, Tools for trimming electric. Barney. *1122
shade holder, Difficulties in hard soldering a. J. R. Price. 767
tube, Double "bumping" die for locks of a. A. P. Press. *480
Lamps, Two types of box tools for needles used on gasoline. W. E. Callaghan. *487
Lap, A cheap, quick. A. H. Appleby. *476
An adjustable; lead laps; mold for same. B. Wheeler. 1263
N. A. C. *482
808
*1413
Laps for drill jig bushings, Making small. H. A. 804
N. A. C. *1413
to enlarge them, Tool for knurling. W. E. Callaghan. *1132
Lapping or grinding bushings. (12) 1286
Latch, Set of dies for making crate hinge and. Joseph V. Woodworth. *940
Lathe, A boring tool holder for the engine. M. W. Leech. *485
A chip pan for the. "Tramp." *633
A convenient boring tool for the. D. E. MacCarthy. *954
A cutting-off tool for the hand. Carroll Ashley. *951
A 44-foot pit. John M. Barney. 1798

PAGE

Lathe, A multiple tool block for the turret. Roger Haines. *951
A new English. Darling & Sellers'. *698
A new feed gear arrangement for the. Schumacher & Boye's. *557
A new 10-inch toolmakers'. Pratt & Whitney Co.'s. *833
A quarter-century's progress in the. Bement, Miles & Co.'s; Flather & Co.'s; New Haven Machine Co.'s; Niles Tool Works Co.'s; Pond Machine Tool Co.'s; Pratt & Whitney Co.'s; Wm. Sellers & Co.'s. 1583, *1601
A self-centering steady-rest for the. E. C. Thulin. *520
A thread-cutting fixture for the. M. W. Leech. *803
—A thread cutting tool. P. A. G. *948
—A thread tool and a die holder. A. H. Cleaves. *482
A tool post for heavy turning on chucking. Wm. H. Brooks. *486
A turret on an old; turning eccentrics. B. W. T. *1410
An English workman's adventure on an American—Automatic feed. Rip Van Winkle. 1554
and its appurtenances that needed improving, A—Square-ended threads on spindle, etc. H. O. Bow. *1268
arrangement for backing off milling cutters. Billy Murphy. *672
arrangement for boring crank disks. Joseph L. Reid. *1267, 1652
arrangement for cutting an odd thread. J. E. P. *479
Arrangement of chip pan and shelves for a; a sling for a lathe chuck. T. H. Miller. *342
as a special machine, An old—Tool holders, bar to receive twist drills and taper reamers; spherical boring and other tools. J. Menegus. *1138
at Krupp works, Six throw crankshaft in. *839
attachment for milling, gear cutting, etc., A. Seneca Falls Mfg. Co.'s. *216
attachment for milling threads in gun breach; fixture for boring lathe headstocks and footstocks; scraping lathe beds. H. Goldsmith. *1397
attachment for relieving the teeth of milling cutters, A simple. Frank W. Parker's. *422
attachment for side adjustment of the cutting tool, A. H. T. Shearer's. *791
attachment for turning and facing change gear blanks, Turret. H. Goldsmith. *1747
attachment for turning eccentric piston rings. A. B. C. *206
attachment for turning eccentrics. Isaac Morgan. *627
bed, A new English form of. James Brockie's. *1515
bed pattern endwise, Drawing strips of a. Francis W. Shaw. *1406
beds, Planing—Templets and finishing tool. H. L. Cameron. *1766
beds, Progress in heavy pattern lathes and forms of. Prof. Sweet. *1586
Bench. Fenn-Sadler Machine Co.'s. *678
Boring bushings in the. V. W. X. *849
—Calculating back gear ratios. A. C. 985
carriage, Adjustable multiple stop or gage for. Edmund J. Bowers'. *597
carriages, Planing. H. L. Cam. *1768
Carrying the weight of the granite columns in the. Cornell Ridderhof. *14
centers. See also "Center," "Centers," "Gages."
Centering long work on the. Z. Y. X. 196
chattering cured, A case of. P. 1405
—Chuck and tools for trimming shells. Barney. *1122
chucks. See also "Chuck," "Chucks."
chucking device, A spinning. Andrew C. Witzel's. *1227
Clark Engineering & Tool Co.'s heavy hollow spindle. James Vose. *1737
Craft's system of electric driving of a. *1019
Cutting cams in the. J. C. B. *177
Cutting spiral gears in the. M. H. Westbrook. *668
dog. See "Dog," "Dogs."
—Elevating the thread tool for cut. Cornell Ridderhof. 804

PAGE

Lathe, Facing large pipes in the. W. D. S. 1409
Fixtures for making round pieces with four tapped holes on turret. E. E. Winship. *336
footstock attachment for facing drill press columns. H. Goldsmith. *1262
for facing milling machine arbor collars, Special dead center. Cincinnati Milling Machine Co.'s. *869
for turning heavy spars. 774
Forty-two inch engine. W. P. Davis Machine Co.'s. *787
Frasse milling attachment for. *453
gear guards. *1185
gearing, Improved intermediate. Pratt & Whitney Co.'s. *710
hand who "crowned" pulleys flat. Joseph V. Woodworth. 4
—Handy rig for turning cranks. Beck. *488
headstock pattern, Stopping off from the middle of a. Francis W. Shaw. *1549
Improved two-spindle. J. J. McCabe. *727
Improving a tapping attachment for speed. A. M. Gordon. 209
In defence of the backing belt for screw cutting on the. James Bell. 637
indicator, A home-made. W. Osborne. *1156
indicator. S. B. M. *767
inventions, Bodmer's differential feed and other. Howard A. Coombs. *370, 388
job and the time, Details of a—Making a pump plunger. B. W. T. *939
"Tramp." 1128
Lazy use of the—Chaining tailstock to carriage, facing sleeve flanges, chasing threads. Faults. 1757
Making small gears on the. John Graves. 196
oil pump that would not pump, A turret. W. H. L. *349
or boring machine fixtures for finishing cast iron segments, Turret. D. E. MacCarthy. *334
or planer, Tool holder for; set of self-hardening tools. Joseph V. Woodworth. *959
ought to run backward to cut left-hand screws, Belief that. S. B. McQuade. 194
—Ratchet feed for compound rest; cutting a long, slim screw. J. Green. *1771
rig for cutting steep pitch worms, A. Wm. H. Brooks. *273
Ring turret. Walter H. Foster's. *722
—Scraping carriages with winch; support for cutting lead screw; adjustable rod support. H. Goldsmith. *1115
Screw machine attachments for a hand. E. E. Winship. *628
—Special oscillating turning device. Robt. J. Smith. *797
B. J. Coates. 962
Special turning. F. E. Reed Co.'s. *657
speed slide rules. See "Slide."
spindle, A chuck or guide for back end of hollow. W. A. Bright. *1281
spindle, Test of driving fit of Hendey-Norton. 413
tailstock screw works, Which way the; habits in machine design; unbalanced handles. See "Habits."
steady-rest, Adjustable. Charles H. Clare's. *390
tailstock, Ball bearing center for spinning. S. B. *1274
tailstock spindle, An adjustable stop for. Robt. H. Laghlin. *29
test indicator, A new. H. A. Lowe's. *1745
test indicator, Attachment for a. M. W. Leech. *197
—The box face-plate. M. W. Leech. *948
The chaser for cutting worms. T. A. B. *956
"Lathe, The machinist and the modern." *1751
Lathe, Too much power for the. Mc. 339
tool, A hand finishing. Adam Herkner. *1688
tool holder for screw cutting, etc., An English. Francis W. Shaw. *1770
tool holder with set of tools; cutting-off tool; holder fitted with turret. O. K. Tool Holder Co.'s. *1738
tool, Improved. Armstrong Bros. Tool Co.'s. *967
tool post for round steel of different sizes. F. H. Sovereign. *206
Tool post for the pattern shop. E. J. B. *1831

PAGE

Lathe tool tests, German. R. Grimshaw. 549
tool, the diamond point. Knocker. 344
W. H. M. "Minnesota." 807
Carroll Ashley. *1766
Tools, centers, face plates, etc., for the patternmaker's. John M. Richardson. *466
Tools for making a brass ball in the. H. B. McCabe. *1133
Trouble with a taper boring. Z. Y. X. 34
True boring in an automatic turret. *868
Turning an 8-foot flywheel on a 36-inch gap. Tecumseh Swift. 1654
Turning and grinding a large roll with a small. Chas. A. Trask. *704
Turning eccentrics with a turret on an old. B. W. T. *1410
Turret. See also "Turret."
Twenty-six inch rapid reproduction. Bullard Machine Tool Co.'s. *1635
work. See also "Turning."
work—A chuck for oval. Gould & Eberhardt's. *693
work—A job of taper turning. E. H. Wright. *477
work—A set of tools for machining a cam. Joseph V. Woodworth. *412
work, An air blast for cooling. See "Cooling."
work at Westinghouse shops, Special turret for. H. Goldsmith. *938
work—Catching threads in screw cutting; giving and following orders. See also "Screw cutting," "Orders."
work—Catching threads in screw cutting, Old patented device for. Howard A. Coombs. *609
work—Chucking fixture for narrow collars, lock nuts, etc.; uneven lock nuts cause trouble in screw turning. Francis W. Shaw. *1124
work—Crankshaft turning. Joseph Menegus. *1274
work—Cutting a steep pitch screw in a grindstone; turning calico; truing a roller of bristle ends. Francis W. Shaw. *488
work—Difficulties in machining conical shells; grinding tap threads. L. O. W. 18, 632
See also "Steel in hardening, Contraction or expansion of."
work—Fits. See also "Fit," "Fits," "Gage," "Gages," "Caliper," etc.
work—Gearing up a lead screw and driving it for steep helical pitches. H. Du Rose. *799
work—Making piston rods and stuffing box followers. Tecumseh Swift. 961
work—Recutting a half nut. P. A. G. *483
work—Swash turning. Curious. *1168
Gestric Land. *1343
work—The flat drill as a turning tool; machining a model cylinder cover; multiple stop, etc. F. W. Shaw. *792
work—Tools for cutting square threads of steep pitch, etc. H. H. 64
W. S. Rowell. *225
W. B. *303
C. W. Higgins. *526
work—Turning a crankshaft for a new bearing. L. J. E. 1486
work—Turning soft rubber. J. B. S. *1134
work, Wooden chucks and face plates and wax for. P. A. G. *415
work, etc., Diagrams for estimating time required for. Arnold Thompson. *985
etc., Holders for small tools for the bench. M. W. Leech. 352
Henry Boettcher. *627
Lathes, Assembling and inspecting; inspector's report; lathe tag; screw list for assembling gangs; spindle drills; headstock boring fixture. H. Goldsmith. *789
by Henry Maudslay, Old. *581
combined to make a rotary planer, Two old. Joseph Menegus. *1516
English. J. H. Ball. 22
English workmen on American. Francis W. Shaw. 636
Experiences of a boy with the speed and other. W. Osborne. 1587
Oiling the ways of. M. H. Ball. *1234
Laundry, A machinist and a Chinese. M. H. M. 1755
mangle circular steam chests, Attachment for planing. Cincinnati Planer Co.'s. *721
objections to smoke consumers. 387

PAGE

Law—A telephone decision case. 101
—Abstracts of shop law as laid down in recent cases. 873, 1158
against unfair competition, German. 1537
Alleged libel on manufactured product—the Marlin rifle. 1442
—Effect of discharge upon contract of employment. 100
—Scope of law relating to polishing machines. 213
—The right to strike upheld in New York. 533
—When title to machinery passes. 1589
—Workmen stockholders of insolvent company entitled to wages. 886
Laws, etc., Consulting technical experts in regard to framing. 589
for the flexure of beams, Discovery of new. Albert E. Guy. *54, *85, *116, *147
of political economy? Do men like Pierpont Morgan make. 278
Lazy man? Who is the. W. Osborne. I. W. P. 945, 1275
Lead bath for hardening, Heating in. E. R. Markham. 321, 1105
Har. D. Ning. *631
laps. B. *482
Wheeler. 808
(With mold for same) N. A. C. *1413
Leather fillet for patterns. A. G. Butler's. *215
packings, Press for forming. A. D. Gage. 99
Wm. H. Brooks. *303
perforating machines, Two jigs and sensitive drill used in spotting, drilling and counterboring holes in wheels of. Joseph V. Woodworth. *155
shoe tips, Dies for punching. Joseph V. Woodworth. *469
Lectures to journeymen, Courses of, under New York Board of Education. 1493, 1526
Left hand, The use of the. 1217
Leg protectors for foundry workers. 740
Legal. See "Law," "Laws."
Lehigh University, Scholarships at. 358
Lehman, Death of Christian. 70
Lense improvement for nearby objects, A make-shift camera. G. Schneider. 1716
Letter cabinet, A pattern. Dayton. *1127
from an engine builder's customer, A. 37
mold, A pattern. Dayton. *1125
stamping on steel, Templets for. A. A. Brandt. *1271
"Letters from Practical Men," Our 1577
Letters in a foreign language, Addressing. 772
Estep & Dolan. 881
Lever for planing and drilling, Laying out a forked. C. W. Putnam. *947
Levers, Laying out vibrating. E. O. W. *995
Libel on manufactured products. 1442
Library, New books in the Mechanical Engineers'. 773
of the American Society of Mechanical Engineers. 358
Lies and excuses. W. Osborne. 1118
Light, Cost of the acetylene. 791
station of the Boston Edison Co., Atlantic Ave. electric. I. E. Moultrop and R. E. Curtis. 815
Lighting, Peculiar effects of. 1174
Limit gages. See "Gage," "Gages."
Limits of accuracy in boring, The practical. See "Boring pulleys."
Lines, Graduation, W. A. Warman and R. B. Cochrane. *15
M. H. Ball. 194
on drawings, Shade. See "Drawing," "Drawings."
Link substitute for slides, A. *447
E. R. Plaisted. *591
Links of clamp hubs, Proportions of. C. L. B. *1058
Liquid for working phosphor bronze. (5) 500
fuel. See "Oil."
Listing small machine parts. L. P. Alford. *1364
Little things that count, Some. R. H. Jackson. 946
Living, Wages and the cost of. 167
A Veteran Observer. 236
Workmen's standards of. Wm. H. Brooks. 640
Tecumseh Swift. *641
See also "Homes."
Load herself, Making the engine. Joseph V. Woodworth. 236
Loam patterns for special pipes. George Buchanan. *1276
Local case hardening. See "Hardening."
industries have begun, How. 1571

PAGE

Localized industries. 1580
Locking a cap screw. John Scott. 1344
Lockwood, Death of William A. 599
"Locomobile" burner press job, A. J. L. Lucas. *448
Locomotive, A historic. 136
and car brasses, Founding. C. Vickers. 1400, *1712, *1745
completes two millionth mile. 1342
construction during the decade 1890-1900, Progress in. 1381
Cost of running a. 739
cranes, Counterbalances for. See "Cranes."
cylinder cock, Taking out broken. W. Osborne. 1020
cylinder, Patching a. W. Osborne. *834
cylinders, The open side extension planer for. Detrick & Harvey Machine Co.'s. *94
during the past quarter-century, Growth of the. O. H. Reynolds. *1625
factories, Census Office statistics of. 1286
for electric lighting, Windmill on. 624
for serving blast furnaces of Audun-le-Tiche, Lorraine, Electric. Frank C. Perkins. *548
of Atlantic type building in France. 711
Overhauling a lumberman's. W. Osborne. 323
piston rods, Gap grinding machine for. Norton Grinding Co.'s. *1629
Purdue University acquires another early. 1094
service on the Manhattan Elevated Railway, Unique record of. 884
shops, The tool equipment of French. Z. 770
side frames by combination feed, Oblique slotting of. Frank Rattek. *489
side rods, Machining. Frank Rattek. *948
slide valves, Porting. Frank Rattek. *1768
spark arrester, Molding a. Wm. Newton. *630
The Forney; traction on the elevated railway. 1303
when reversed, Newspaper account of action of. Theodore. 493
Works' dinner, From address by Edward Atkinson at the Baldwin. 757
Works, Seventieth anniversary of the Baldwin. 378
Locomotives, A Typical Shop to Serve a Road or Division Equipped with 310. By L. R. Pomeroy. †998
and retires, F. W. Webb built four thousand. 1856
Brick arches in; English engineers' conservatism; American locomotives. 413
Electric shop. C. W. Hunt Co.'s. *145
for South Africa, Quick deliveries of American. F. C. C. 1077
General Electric Co.'s report on. 675
Mechanical stokers for. Fred H. Colvin. 816
Purdue University erecting a building for historic. 710
Tool for planing tinned crossheads for compound. J. F. W. *22
Trevithick's and other early. W. H. Booth. 872
without stopping the train, Changing. James B. Stanwood. 1313
Lodge & Shipley Machine Tool Co., Some shop practice of the. H. Goldsmith. *789
Loewe & Co., Affairs of Ludwig. 645
& Co.'s album of views, Ludwig. †39
Logarithmic Tables of the Measures of Length. By T. V. Marshall. †775
Long work, Centering. Z. Y. X. 196
Longitudes, Annuaire du Bureau des. †742
Looms in England, Erection of American Northrop. 1453
Lubricant, Lubrication, etc. See also "Oil," "Oils."
cups, Multiple spindle drill for bottoms and nipples of; Countershaft with grease lubrication for loose pulley. C. H. Besly & Co.'s. *1111
for cutting threads on copper, Beeswax as a. John Koehler. 192
for cutting tools, Tallow as a. George Nelson. 1271
Graphite as a cylinder. 553
or otherwise for cutting, Oil as a. W. G. T. 1342
Tallow as an engine and pump. W. Osborne. 1398
Lubricants for working aluminum. L. O. Danse. 1550
Thos. W. R. McCabe. 1659
Lubricating and anti-friction devices, Twenty-five years' progress in. 1585

PAGE

Lubricating cutting tools by compressed air oil service. H. F. *211
the ways of lathes. M. H. Ball. *1234
Lubrication and education. Tecumseh Swift. 304
for sawing copper. A Toolmaker. *1125
W. H. Booth. *1417
invention, Bodmer's planer. Howard A. Coombs. 370, 388
Lucas, Long service of Thomas. 1119
Lumber and scrap racks, Pattern. Wm. Newton. *1265
camp in the Oil Country, A—Natural gas and snakes. W. Osborne. 160
imported into Great Britain, Value of. 1771
Waste of pattern. J. L. Gard. 808
Foreman Pattern Maker. 1129
Lumbermen's locomotive, Overhauling a. W. Osborne. 323
Luncheon to Prince Henry, Engineers and manufacturers at. 355
Luxembourg shops, Enterprise in. F. C. C. 1789

M

McCabe, Death of Owen. 598
McGregor, Death of Robert. 1462
Machine construction, A review of progress in. Prof. Dr. Reauleaux. *1623
Design, Easy Lessons in Mechanical Drawing and. By J. G. Meyer and C. G. Peker. †499
Design, Notes on. By C. H. Benjamin. †453
is, What a. 1695
"Machine, La"—A picture by Jean Veber. 677
shop sermon, A. Rev. Charles Stelzle. 470
The man behind the. 738
tool according to German definition, A. 1853
Tool Builders' Association, Constitution, etc., of the National. 1063, 1093
Tool Builders' Association, The Cleveland convention of the National. 1431, 1525
Machine Tool Salesman. 1725
tool business in Great Britain, The American. Charles Churchill. 1621
tool designer Steinlen and his methods, The. 1674
tool development as recorded in the pages of the AMERICAN MACHINIST, A quarter of a century of—Some statistics. 1624
tool equipment of French locomotive shops, The. Z. 770
tool industry in the decade 1890-1900, Progress of the. From Census Bulletin. 1643
tool industry, The growth of the. 1638
tool inventions of J. G. Bodmer. Howard A. Coombs. 369, 388
tool progress of Cincinnati during the past twenty-five years, The. 1622, 1726
tools, A quarter century's progress in—Drillers, lathes, planers, shapers, millers, screw and turret machines, boring and turning mills, grinding machines. *1600
tools, An English View of American—Hard iron, automatic machines and bolts, new steels, comparisons of British and American tools and workmen, business criticisms, etc. William H. Booth. *1578
Tools and Metal Working Machinery—Section A of the Mechanical Index. †966
tools at the Duesseldorf Exposition. Frank C. Perkins. *1445
tools at the Paris Exposition. By Michel Sviokossitch. †998
tools by Henry Maudslay, Some early. *581
tools, Cost of home-made. 1092
Tecumseh Swift. 1202
Sartor Resartus. 1655
Tools (Die Werkzeugmaschinen). By Hermann Fischer. †70
tools for railroad work, The value of up-to-date. M. K. Barnum. 729
tools, Feeds and speeds of. Stanley H. Moore. *1857
tools, Foundation drawings for. C. D. McArthur. 1554
tools, Hydraulic device for adjusting heavy work on. Henry Hess'. *443
tools, Motor driving of. Charles Day. 1851
tools, Over crowding. Foreman. 1761
tools said to be offered abroad at cut prices, American. 534

PAGE

Machine tools, Some amusing things about. 231
tools, Suspended. Tecumseh Swift. 1127
tools, The evolution of. A Cosmopolitan. 690
tools, The need of investigations of the power required to drive. Dodge & Day. 1689
tools, Use of a surveying instrument with portable. Charles C. Tyler. 1798
tools, etc.—A review and a glance forward—The steam engine; antiquity of new things; heavy pattern lathes; forms of lathe beds; daring to do; proportions of milling machines; cost of grinding piston rods, etc. Prof. Sweet. *1586
work, etc., Good enough. See "Good."
Work, Manual of Instruction in Forge and. By Frank E. Ward. †39
work of an engineering college. 68
Machines, Materials of. By A. W. Smith. †1350
-Outils a l'Exposition Universelle de 1900, Les. By Michel Svilokossitch. †998
Machinery against accidents, Guarding. *1185
at the World's Fair, St. Louis—Some new features. 611
builders in Russia, A convention of. 305
in China, American versus English. 443
in rolling mills, The treatment of machinery in. G. E. Flanagan. 1693
in Russia, Building American. 134, 423
W. M. Potts. 163
industry, Statistics of the Massachusetts. 37
on the interests of workingmen, Effect of the use of. 596
Second-hand. 1806
The machinist and labor saving. 1556
The power of—Hand and machine work; steam power in the United States. Carroll D. Wright. *1576
trade. See "Trade."
Machining a bracket casting, Criticism of special fixtures for. H. E. Brown. 64
aluminum. L. O. Danse. 1550
Thos. W. R. McCabe. 1659
conical shells, Difficulties encountered in. See "Shells."
Machinist, A gentleman. 1867
A Philippine. *990
apprentice system for the Navy, A. Lieut. T. W. Kinkaid. 471
Kit of an English. I. W. P. 800
Long service of a. 1119
out of his place, A. Wm. H. Brooks. 338
The tramp. Ver. I. Nier. 9
J. G. 209
I. W. Payler. 339
who learned Chinese, A. M. H. W. 1755
with only one hand, A good. C. W. Putnam. *465
Machinists' Co-operative Association, The. 966
Machinists—Nine-hour day, strikes, etc. 135, 423, 565, 598, 646, 674, 677, 707, 740, 773, 821, 884, 885, 917, 965, 966, 997, 998, 999, 1030
Machinists' tricks, Some—Chaining tailstock to carriage for drill feed; manner of facing sleeve flanges, chasing threads, etc. Faults. 1757
Magazine feed as illustrating machine tool development. Census Bulletin. 1644
screw machine arranged for quick firing gun shells. Alfred Herbert, Ltd.'s. *1197
Magnet, Holding work with a. George Drachus. *1407
ring, Pattern for a cast steel. B. M. *958
winding jig, A. Milwaukee. *1716
Magnetic Calculations, Electrical and. By A. A. Atkinson. †854
chuck, A fixture for the. R. E. F. *1420
crane brakes. Gerald E. Flanagan. *523
drawing board and T-square, A. W. T. Ellison & Co., Ltd.'s. 1805
drill jig, A. A. L. De Leeuw. 324
Ferd. Wertheim. *1509
eye pick. H. E. B. *1754
time saving planer attachment, A. H. A. Coombs. *1078
Magnetism and Their Appliances, An Elementary Book on Electricity and. By D. C. Jackson and J. P. Jackson. †1174

PAGE

Mail. See "Postage." "Postal."
Man behind the machine, The. 738
The average. W. Osborne. 657
who "knows it all," The. 884
Manager was refused. Strike because increased salary for. 917
Manchester, Soot in. 774
World's Fair to be held in. 1061
Mandrel, A long wire spring. L. O. Danse. 1523
Expanding. J. P. Appleby. *1757
for facing milling machine arbor nuts, Parallel pin. *870
for winding flat spring wire edgewise. W. A. Warman. *348
Mangle, Attachment for planing circular steam chest of laundry. Cincinnati Planer Co.'s. *721
Mansfield Technical Society, The. 1870
Manufactures and Commerce, The new Department of. 421, 594, 597, 997, 1351
Census statistics of. 214
statistics—Hand and machine work, etc. Carroll D. Wright. *1576
Manufacturers, American Trade Index of the National Association of. †453
at luncheon to Prince Henry, Engineers and. 355
on reciprocity and foreign trade, The opinions of machinery. 242, 246, 274, 307, 383, 388, 389, 564
Seventh annual convention of the National Association of. 593
vs. monopolists. 1428
Col. James Kilbourne. 1430
Manufacturers' Association, The metric system in the. See "Metric."
Manufacturing in the same shop, Jobbing and. Junior Boss. 1458
S. L. Bley. 1686
Manuscript and drawings for publication. 623
Marine Engineering, Practical. By W. F. Durand. †39
Marking blueprints. See "Blueprints."
twist drills. J. D. Cox. 13
J. C. Green. 195
Markings of a draftsman's slide-rule, Five important. Geo. F. Summers. *233
Martin, Death of Henry. 502
Massachusetts Institute of Technology to establish course in gun designing. 1174
machinery industry, Statistics of the. 37
Masts, Turning. 774
Match plates, Gates, cards and. S. H. Stupakoff. *410
Material, Indexing drawings and. *1824
Materials of Machines. By. A. W. Smith. †1350
secedes, The American section of the International Association for Testing. 917
Specifications for steel. William R. Webster. 814
—The deflection of beams by graphics. Willibald Trinks. 1798
Twenty-five years' progress in machine shop. 1582
Mathematician in Love, The (Poetry). 1063
Mathematics is taught, How. John Perry. 1514
Maudslay, Some early machine tools by Henry. *581
Measures, A rational solution of the problem of weights and. Sidney A. Reeve. 1795
of Length, Logarithmic Tables of the. By T. W. Marshall. †775
Measuring machine, A new. John M. Rogers'. *237
Measurement on drawings, To find the unknown. Frank B. Kleinhans. *1163
Measurements, The Arithmetic of Electrical. By W. R. P. Hobbs. †774
Meat cutter engine, Repairing a. W. Osborne. 663
riots and coal monopolies. 741
Mechanic, A plea for technical education for the. Victor C. Alderson. 1173
Notes by a wandering—American Ordnance Co.; hanging clothes; milling brass caps with formed cutters; counterbore with adjustable stop collar; lathe attachment for milling threads in gun breach; toolroom cases; Hendey Machine Co.; fixture for boring headstocks and footstocks; fixture for boring milling machines; rack cutter made from shaper; scraping lathe beds; safety stop for engine. H. Goldsmith. *1397
Notes by a wandering—Assembling and inspecting lathes; lathe lag; inspector's report; screw list for assembling gangs; spindle drills; headstock boring fixture; splined rod milling attachment. H. Goldsmith. *789

PAGE

Mechanic, Notes of a traveling—At Westinghouse works—milling machine and drill press vise, lathe turret, large caliper, large inside gage, hand wheel chuck and vise for light milling. H. Goldsmith. *938
Notes by a wandering—Baldwin Locomotive Works' system; painting ends of bars in stockroom; motor supports; big cranes; center finders; indexing drill jig; circular planing attachment; American Turret Lathe Co.'s tool for boring taper holes; Binsse Machine Co.'s fixture for testing bevel gears; system for caring for drills, taps, etc.; Gould & Eberhardt's lathe footstock for facing drill press columns. H. Goldsmith. *1260
Notes by a wandering—Shop practice of William Sellers & Co.—Correcting a jig to 0.0002 inch; tool room; making jigs on milling machine; shaper for machining planer table racks; winch for scraping lathe and planer parts; support for cutting long lead screws; adjustable rod support; adjustable clamp blocks; boring machine chuck; planer tool for splining a long sleeve. H. Goldsmith. *1114
C. A. Hargraves. 1403
Notes by a wandering—Pratt & Whitney Co.; turret lathe attachment for turning and facing change gear blanks; fixtures for milling thin steel pieces and bolt heads. H. Goldsmith. *1747
The traveling. Ver. I. Nier. 9
J. G. 209
I. W. Payler. 339
Mechanics—Going to Nature. 1011
—Problems. By F. B. Sanborn. †1559
Mechanical antiquities—The moonshine slitting mill at Old Boonton. E. P. Buffet. *406
antiquities—A box of engineers' instruments 200 years old. E. P. Buffet. *616
fallacies, Instances of. Y. Z. 1269
Index, Section A of the—Machine Tools and Metal Working Machinery. †966
Medal and banquet, The John Fritz. 1494, 1638, 1639, 1658, 1660, 1661, 1724
to Steinlen, Award of the Prony. 1674
Melting, A hand forge for. Buffalo Forge Co.'s. 409
furnace, Improved brass. A. J. and E. H. Weatherhead's. *647
scrap sheet iron. (1) 69
Melville, Coming retirement of Rear Admiral Geo. W. 1142
George W.—A star admiral. 499
in the Arctic, Rear Admiral. 1836
Report of Engineer-in-Chief—Failure of Navy Personnel Bill; change in Bureau of Steam Engineering. 1557
Men, Characteristics of boys and. X. B. M. 202
in the shops and how to get them there. W. Osborne. 634
and overworked men, Lazy. W. Osborne. 870
I. P. W. 945
The burden of the old. Tecumseh Swift. 1275
W. H. Sargent. 1425
Message to Garcia," A reply to "Carrying a. Kenneth Falconer. 730
Metal, The electric arc for cutting up. 694
Galvanic coloring of. 121
Trades Association, The annual convention of the National. 561
work, Artistic die. Joseph V. Woodworth. *696
Metals, A patented process for hardening. Mary J. R. Greenman's. 1525
Charpy's method of testing. 121
For cleaning and soldering. 1684
in the United States in 1900. Output of. 232
Metallurgical Laboratory Notes. H. M. Howe. †1805
Metallurgy of Cast Iron, The. By Thomas D. West. †101
Meters in Memphis, Water. 1092
Metric system, Action of the Cincinnati manufacturers on the. 1725
system and European trade, The. Machine Tool Salesman. 1725
system, December action of the A. S. M. E. on. 1797, 1801, 1804, 1837, 1868
R. H. Thurston. 1837
Gus C. Henning. 1869

PAGE

Metric system before the National Machine Tool Builders' Association, The. 1525, 1725
system, Changed views regarding the. Henry Hess. 1490
system in the Manufacturers' Association, The. 594, 1028
system, Faulty application of the. H. C. Heckendorn. 670
system from the commercial standpoint, The. F. E. Drake. 1866, 1869
system—Government action; alleged compulsory use; action of Mechanical Engineers' old committee, etc. 356, 377, 420, 532, 565, 673, 676, 997
Geo. M. Bond. 389, 527
H. B. Bartlett on the. 1867
system in Great Britain. Consul-General Evans. 1473
system in Great Britain, The. 331
system, Mr. Daunert on the. 700
system, Opinion of C. L. Libby on the. 1218
system, Opinion of E. W. Mix on the. 1156
system, Paper before Mechanical Engineers on the. F. A. Halsey. 1796, 1801, 1804
system, Remarks at June A. S. M. E. meeting on committee's action as to. 813
system, Testimony of Lord Kelvin on the. 645
system, The application of the. Ernest R. Briggs. 450, 452, 1347, 1348
system, The committee's report to Congress on the. 673
system, The Franklin Institute and the. 236, 437, 1018, 1369, 1725
system, Western Society of Engineers on the. 1462
system. See also "Duodecimal system."
Mica, Springs made of. 387
Micrometer as a hight gage, An inside. D. E. MacCarthy. *1279
caliper case, Improving the Starrett. W. A. Warman. *797
caliper, An English. Humpage, Jaques & Pederson's. *872
calipers for taper gages. G. Schneider. 962
clamp for the milling machine, A. F. W. Unger. *952
depth gage, A. A. C. F. *634
Depth gage attachment for. M. W. Leech. *481
gage for setting calipers for a little more or less than standard, A. H. E. T. *1416
scheme, A—Doing away with a number of parts in a set. C. W. Putnam. *735
surface indicator, A. M. W. Leech. *476
Micrometrical forging. Theodore. *806
Micrometrically adjustable collar for milling-machine arbors. C. W. Coburn. *625
Military experimental work of a government, The. Grahame H. Powell. 185
inventions—Grahame H. Powell. 257
Mill, An adjustable hollow. M. W. Leech. *480
housings, Machining the jaws in. A Pittsburgh Machinist. *1134
Removing a broken set screw at a flour. W. Osborne. 1021
with inserted cutters, A hollow. Roger Haines. *640
work, Reminiscences in—shafting couplings. A. Sangster. 476
Mills and counterbores, Special operations in making—Hardening, etc. E. R. Markham. *876
at Old Boonton, Ancient iron. E. P. Buffet. *406
Hardening formed. E. R. Markham. *753
The treatment of machinery in rolling. G. E. Flanagan. 1693
Millers, Positive feed. A Cosmopolitan. 580
A Voice from the West. 703
Twenty-five years' progress in. Becker-Brainard Co.'s; Brown & Sharpe Mfg. Co.'s; Cincinnati Milling Machine Co.'s; Pratt & Whitney Co.'s. 1583, *1609
Milling and drilling, A special casting with jigs for. Mac. *347
and drilling job, A. N. A. C. *801
and grinding fixture, A handy. B. W. *765
attachment for lathe, Frasse. *453
attachment, Splined rod for. H. Goldsmith. *790
brass caps with formed cutters; lathe attachment for milling thread in gun breach; toolroom cases for cutters, etc.; fixture for boring milling machines. H. Goldsmith. *1397

PAGE

Milling brass segments. Electric. *1770
cutter and leave ends straight, Arrangement to slot with. Howard A. Coombs. *182
cutter for slabbing connecting rod links, Self-hardening steel. *1712
cutter likely to lose its teeth in hardening, A. E. R. Markham. *1077
cutters, A simple lathe attachment for relieving the teeth of. Frank W. Parker's. *422
cutters, Hardening thin. E. R. Markham. *902
cutters, Improved device for backing-off. Gus C. Henning's. *1340
cutters, Lathe arrangement for backing off. Billy Murphy. *672
drilling, etc., a bracket casting, Criticism of special fixtures for. H. E. Brown. 64
fixture for a toggle casting, A reversible. D. E. MacCarthy. *1251
gear cutting, etc., A lathe attachment for. Seneca Falls Mfg. Co.'s. *216
in the drill press. Joseph V. Woodworth. *758
jig, A. N. A. C. *23
jig, A. S. B. McQuade. *210
jig for brush-holder yoke. C. Aliper. *348
jig for thirty castings at once, A long. Roger Haines. *1270
jigs, a drilling jig and the work, Two. N. A. C. *801
keyways, Chuck for holding shafts in. C. M. *1271
machine, A cam-cutting attachment for the Brown & Sharpe Mfg. Co.'s. *977
machine, A large horizontal boring, drilling and. Niles Tool Works Co.'s. A. L. De Leeuw. *1785
machine, A micrometer clamp for the. F. W. Unger. *952
machine, A special rig for cutting bevel gears on the. Edward R. Conners. *991
machine—An indexing fixture for machining clutch collars, etc. Carroll Ashley. *1419
machine and special cutter grinder, Thread. Pratt & Whitney Co.'s. *1629
machine arbor drivers. See "Arbor."
machine, Boring jigs in the. H. Goldsmith. 1115
C. A. Hargraves. 1403
machine, Chart for compound indexing on the. 1374
Machine Co., Some points in shop of Cincinnati—Fast milling of platen slots, etc.; air blast for clearing of chips; right-hand spirals on end mill cutters; drills for spindles; true boring on automatic turret lathe; dial indicators for testing; testing squareness and parallelism of platen and spindle; testing alinement of central slot with spindle and table trunnion; adjusting the planer tool to correct the position of the slot; special dead center lathe for facing arbor collars; parallel pin mandrel; grinding central boss of cutters; grinding face of arbor nuts; proving truth of collars and nut. *866
machine cut both ways, Making the. W. H. Lehman. 763
machine feeds. P. V. Vernon. 1550
machine feeds, Belts vs. gear-driven. S. T. Freeland. 732
machine fixtures for holding small plates, cylindrical pieces, etc. E. E. Winship. *1313
machine for armature spiders, Index. Newton Machine Tool Works'. *757
machine—Fractional indexing. C. E. De Puy. *1506
machine, Holding a row of round pieces in the. J. Schuring. *1760
machine job and the vise jaws for holding work. C. O. D. *486
machine job—Making a combination blanking die. William Doran. *980
machine—Making an index plate. H. T. G. *953
machine—Making pawls; Paper washers or micrometrically adjustable collars for gang saws. Mac. *31
C. W. Coburn. *625
machine, Renold Chain drive for Whitney hand. *1787
machine or shaper, Adjustable parallel for. C. B. *1139
machine—Scheme for making the universal dividing head universal. W. A. Warman. *698

PAGE

Milling machine, Special table for the, H. T. G. *1056
machine spindle for sawing copper, High-speed. A Toolmaker. *1125
machine, Truing the tail center of a. A. B. Christman. *351
machine vise jaws, Jig for drilling. W. E. Callaghan. *496
machine vise jaws, Locating stop-pins in. W. E. Callaghan. *950
machine vise used at Westinghouse works, Universal; vise for light milling. H. Goldsmith. *938
machine with self-acting feeds by Henry Maudslay, Boring and. *583
machine with telescopic screw for elevating the knee, Universal. Brown & Sharpe Mfg. Co.'s. 422
W. A. Muir & Co. 767
machine, etc., with swiveled motor supports at Nordberg Mfg. Co.'s plant. 934
machines, Differential indexing applied on Brown & Sharpe. *1282
machines, Future proportions of. Prof. Sweet. *1586
machines, etc., A new vise for. Hill Tool Co.'s. *1030
operations, A jig for two. Mac. 476
partition castings of coin assorter, Jig for hollow. J. A. Webster. *1138, 1140
Press notching instead of. W. *703
slot lever castings, A string jig for drilling and. C. Patterson. *14
slots, A fixture for. Joseph V. Woodworth. *758
slots in small shafts, Fixture for. C. H. Rowe. *1412
the jaws in mill housings, Cutter for. A Pittsburgh Machinist. *1134
thin steel pieces and bolt heads, Fixtures for. H. Goldsmith. *1747
worms on the planer, Attachment for. Adams Co.'s. *1546
Mine hoist at Duesseldorf Exposition, Electrically driven. Siemens & Halske and Friedrich Wilhelmschutte Mining Machinery Corporation's. *1441
hoisting machinery, A large differential action reducing valve for. Nordberg Mfg. Co.'s. *1161
hoisting plant, Repairing a—Making new drums. B. W. T. *1135
manager who didn't care what other people were doing, The coal. 884
workers to fight railroad pooling. 710
Mines, British American soap. 521
Mineral output of the United States in 1900. 232
products of the United States. Hon. Ludwig Max Goldberger. 1772
Mines Annual, American. By Geo. E. Vigouroux. †70
Mining output statistics of United States for 1900. 232
see also "Coal."
Mistake about a gear, Chasing a. W. Osborne. 467
Mistakes in business, Two. 39
in designing—Engine frames, pipe hanger, cam-driven sieve. Peter H. Buliock. *1395
Moehlmann, Death of Charles. 1695
Mold. A pattern letter. Dayton. *1125
for lead lap. N. A. C. *1413
Ingot. Prof. John E. Sweet's. *1349
Molds for babbitt hammers and vise jaws. H. T. G. *478
Ferd. Wertheim. *1420
Molders of New York secure a nine-hour day. 999
own shares in a foundry, A co-operative plan under which. Thos. Wathey. 210
Molding. See also "Founding," "Foundry," "Pattern," "Patternmaking," etc.
a brass cover plate. Geo. Buchanan. *328
a chain sheave. Foundry Foreman. *958
a grate lever fulcrum, Ways of. Wm. Newton. *1121
a pipe flange on the molding machine. Milwaukee. *1792
a rope sheave. William Newton. *200, 630
"Hobo." 344
Francis W. Shaw. *635, 637
a round tank. R. H. Palmer. *1228
a sawmill bed. R. H. Palmer. *96
a spark arrester. Wm. Newton. *630
a tank cover. G. Buchanan. *1404
and casting process, A patented. Frederick Baldt's. 1206
bosses on castings. John M. Richardson. *1105
Cone pulley. Francis W. Shaw. 636
—Drawing strips of a lathe bed pattern endwise. Francis W. Shaw. *1406
machine. E. C. Stearns & Co.'s. *41

PAGE

Molding, Machine—Mounting a gear cover. Geo. Buchanan. *1130
machine, Return bend pattern on a. Molding Machine. *1344
Making a cone-pulley pattern and the. J. L. Gard. *199
"Hobo." 344
—Mechanical devices for withdrawing parts of patterns. S. H. Stupakoff. *378
of a wheel guard, Machine. Kenneth Buchanan. *731
pipes of different lengths; Ring cores. Geo. Buchanan. *491
pipes without patterns. Francis W. Shaw. *1393
retorts of different lengths. Geo. Buchanan. *1131
—Shaping the flask to avoid tucking. Geo. Haley, Jr. *1404
special pipes with loam patterns. George Buchanan. *1276
spiral gears and worms. Francis W. Shaw. *913
—Steel frames instead of wood slip-overs for snap flask work. C. Neil. 1408
—Stopping off from the middle of a pattern. Francis W. Shaw. *1549
Stopping off in. John M. Richardson. 613
Albert Clegg. *1264
Money. An English view of the American love of. 1029
Monkey wrench story, A. 788
Monopolies—Ownership of public necessities. 1546
Monopolists, Manufacturers vs. 1428
Col. James Kilbourne. 1430
Monopoly, An example of a real. 1524
Morgan snake laws of political economy? Do men like Pierpont. 278
Morganization of Industry, The. †1350
Morocco, Gibraltar and Spain, Trade matters in. Henry L. Geissel. 903
"Morphidites," Improved. Machinist. M. H. Ball. *1408 *1765
Morris, Death of Henry. 168
Morse Twist Drill & Machine Co., Mechanics' Mutual Relief Association of the. 102
Mortising, Machine—American triumphs. 524
Morton, Death of Henry. 709
Motion, Perpetual. See "Perpetual."
with a pause at each end, Layout for a reciprocating. R. E. *994
Motor. See also "Alcohol," "Automobile," "Boats," "Engine," "Electric," "Gas," "Gasoline," "Hydraulic," etc.
A solar. 1516
driving of machine tools. Charles Day. 1851
show, Conduct of workmen taken to a. 995
support. H. Goldsmith. *1260
with two armature windings, Variable speed electric. Commercial Electric Co.'s. *587
Motors on tools at the Nordberg Mfg. Co.'s plant, Swiveled supports for. *933
Movement with a pause at each end, Layout for a reciprocating. R. C. *994
Music and smoke. 1595
paper's independence in publishing the news, A. 710

N

Nail heads or buttons, A blanking and forming die for. W. E. Callagan. *22
Nails, An eccentric keyed with wire. Mac. *1277
in pattern work. J. L. Gard. 947
Names, Shop. See "Nomenclature."
Narrowmindedness in the shop—Refusing permission to see screw machine; doubling engine horsepower; starting a wagon. Y. Z. 1269
National Association of Manufacturers, Seventh annual convention of the. 593, 1028
Civic Federation, Annual meeting of the. 1834
Civic Federation, The. 69, 100, 305, 451, 695
Machine Tool Builders' Association. See "Machine tool."
Nature, Going to. 1011
Naval Architects' and Shipbuilders' Book of Formulas, Rules and Tables, The. By Clement Macrow. †1663
engineers in a month. 1236
engineering advance—Its influence upon sea power—Specialization, engineers, ships, machinery, sanitation, steam turbines, oil fuel, influence of education, the press, ship yards, etc. Rear Admiral George W. Melville. *1572

PAGE

Naval engineering experimental station, Bill for a. Tennille. 135, 566, 645
vessel, Why it takes so long to build a. George W. Dickie. 1825
vessels, Alleged interference of workmen with machinery of. 1838
vessels in Government yards, Building of; prohibition of employees from influencing legislation. 533, 597, 772, 997, 1031
Navies, Engineers in the American and British. 596
Navigation congress at Duesseldorf, International. 773, 855, 904, 964
Navy, A machinist apprentice system for the. Lieut. T. W. Kinkaid. 471
Criticism of the British. 1445
International system screws in the French. 1205
Personnel Bill, Failure of; change in Bureau of Steam Engineering recommended by Engineer-in-Chief Melville. 1557
The engineer captain in the. 916
yard employees to more holidays, Oojection of. 454, 566
Liquid fuel in the. See "Oil."
Neckties, Machinist with $400 worth of. 1867
Needle box tools, Two types of. W. E. Callaghan. *487
Handle for a. Wilfrid J. Thompson. *1407
points for holding tracings. Frank B. Kleinhans. *1655
Negroes into a labor union, Intimidation against organizing. 69
New Britain, Conn., The inventors of. 387
Jersey, Child labor in. 644
York Rapid Transit Tunnel, The. †1174
York, Seen and heard around—A crane for a chuck; hinge die; time-wasting operations, etc. W. A. Warman. *191
York State Factory Inspector for 1900, Report of the. 213
York trade schools, The. 562
Newspaper. See also "Journal," "Paper," etc.
discoveries, Wonderful. 167
engine and boiler stories. Theodore. 493
Nickel plated articles, etc., Local case-hardening of. L. O. Danse. 911
See also "Hardening."
steel alloy, An alleged new. 1075
Night work and a drunken gang. W. Osborne. 1859
Nipple, Jig for drilling a. W. H. Lehman. *737
Niuchwang, The Building of. †475
Nomenclature in England, Shop. Francis W. Shaw. 1862
Shop. W. Osborne. 1539
Nordberg Mfg. Co.'s plant, The electrical equipment of the. *929
Norway, Outlook for American machinery in. Henry L. Geissel. 1493
Notching instead of milling, Press. W. *703
Note book of a cosmopolitan, From the. See "Cosmopolitan."
Notes by a wandering mechanic. See "Mechanic."
Numbers, Twist drill names and. J. D. Cox. 13
J. C. Green. 195
Numbering and lettering with steel stamps. A. A. Brandt. *1271
H. F. 1403
T. H. Miller. 1403
working drawings, A decimal system for. See "Drawings."
"Nut-cutting engine," Bodmer's. Howard A. Coombs. 371, 388
Nut for calipers, A rapid transit. W. *909
E. R. Markham. *1396
Rig for drilling a spring and prong. L. E. W. *882
on the lathe, Too much power for tapping a. Mc. 339
Recutting a half. P. A. G. *483
tap, A continuous working. Howard A. Coombs. *182
-tapping machine by Henry Maudslay, Old. *581
Nuts—Marking details "to fit"; fine threads for large bolts. Gerald E. Flanagan. 1266
narrow collars, etc., Chucking fixture for lock; trouble from uneven lock nuts in screw cutting. Francis W. Saaw. *1124
true, Making arbor collars and. *869, *871
Nuttall Gearing. †742

O

Obstructionists, Habitual. B. W. T. 192
Octagon drilling jig, An. N. A. C. *17
Office building of General Electric Co. of the works, Good enough in the. Kenneth Falconer. *1253, 1091

PAGE

Oil. See also "Lubricant," "Lubricants," "Lubricating," "Lubrication."
and coal for fuel, Tests to show relative economy of. 525
and water hardening of taps, milling cutters, etc., Combined. John L. Bacon. *325
Har. D. Ning. *631
burners, Discussion by A. S. M. E. on. 1800
can, Neglect of the. S. P. Y. 672
Country, An echo from the—Experience with a rich partner. A. Tyke. 1793
Country echoes, An appreciation of the. Gerald E. Flanagan. 1421
Country, Echoes from the. W. Osborne. 5, 54, *94, 160, 174, 228, 261, 323, 375, 409, 438, 467, 516, 554, *578, 621, 663, 691, 726, 759, 795, *834, 870, 900, 945, 988, 1020, 1043, 1118, 1156, 1193, 1219, 1304, *1336, 1366, 1398, 1476, 1539, 1587, 1646, 1739, 1801, 1859
Country, Re-echoes from the—Giving and following orders. John Randol. *439
W. Osborne. *578
derricks, Some pictures of. W. Osborne. *579
filter, The American. Burt Mfg. Co.'s. *1142
for gas engines, Importance of good cylinder. W. Osborne. 1459
for working phosphor bronze. (5) 500
from exhaust steam, Discussion on separating. 1800
fuel at sea. 354
fuel combustion. Chas. E. Lucke. 816
fuel in the Navy. 306, 1317
Rear Admiral George W. Melville. *1574
grooves in long boxes, Tool for cutting. Joe Spahn, Jr. *1418
grooves in planer V's. John Randol. 374
guard for the automatic, An. S. F. Arthur. *1767
Paint that shows the lack of. 1168
pump, An. Hoefer Mfg. Co.'s. *357
pump that would not pump, An. W. H. L. *349
pump, wells and refinery, Pictures of. W. Osborne. *1336
separator for boilers, An. Duplex. *351
service, Compressed air. H. F. *211
swindle, The lard. 39, 165, 278, 1206
testing machine and some of its results, A new. Albert Kingsbury. 1800
wells, The Reid gas engine for pumping. F. J. M. *549
Oils at high temperatures, Friction of lubricating. 37
R. H. Thurston. 113
in cutting metals, The use of; cooling the tool by compressed air. W. T. G. 1342
A. L. De Leeuw. *1456
Oiling the ways of lathes. M. H. Ball. *1234
Old men, The burden of the. Tecumseh Swift. 1425
W. H. Sargent. 1425
Omnimeter annex, The. W. A. Warman. *522
Opinions among mechanics, Differences of: peculiar treatment of steel. L. O. Danse. 1419
Order in a shop. See "Shop, How to brace up a," "System," "Foreman," "Foremen."
Orders, Giving and following; order blanks, etc. W. Osborne. 177, *578
John Randol. *439
John L. Bacon. 882
L. O. Danse 914
See also "Screw cutting, Catching threads in."
—Instructions for foremen. C. Neil. 659
—Instructions to workmen. Joseph Dysart. 240
tickets, etc., under premium plan at works of Bickford Drill & Tool Co., Shop. *1189
to make work right, Exceeding. W. Osborne. 691
Tracer card file, etc., for tap. C. H. Besly & Co.'s. *1112
—Unwritten instructions; bracket pattern. S. H. Bunnell. 639
Written and unwritten. W. Osborne. 726
Organization discussed at meeting of National Civic Federation. 1834
Ornamentation—Avoiding useless work. 1571
Oscillating turning device, Special. Robt. J. Smith. *797
B. J. Coates. 962
Oval work, A chuck for. Gould & Eberhardt's. *693
Overalls, Machine for washing. F. W. Harris. *1129
Ownership of public necessities. 1546

P

PAGE

Pacific Coast, The Power Plants of the. By F. A. C. Perrine. †854
See also 1447.
Packing, "Dunbar." W. Osborne. *94
rings, Laying out Dunbar. H. F. Killean. *1132
Packings, Press for forming leather. A. D. Gage. 99
Wm. H. Brooks. *303
Page's Magazine. †1319
Paint that shows the lack of oil. 1168
Painting a smokestack, Rope block for use in. Oil Stone. *956
R. P. King. *1489
ends of steel and iron bars in stock room. H. Goldsmith. 1261
Pan and shelves for a lathe, Arrangement of chip and oil. T. H. Miller. *342
for the lathe, A chip. "Tramp." *633
Paper and iron friction gearing. See "Gearing."
circles, Machine for applying glue to emery. C. H. Besly & Co.'s. *1108
How to correct a news. 1695
mill, Turning a large journal in a. Edward De Hart. 1753
shrink gage, A. F. W. Unger. *952
to iron or steel, Pasting. 1548
Papers, Result of reading mechanical. R. H. Jackson. 1691
Value of technical journals. 416
See also "Journal," "Newspaper," etc.
Paragraphing to fill corners. 1587
Parallel, Adjustable. C. B. *1139
Setting shafts. A. H. Cleaves. *9
Parent, Death of Ernest M. 247
Parmelee, Death of Harry S. 1431
Patent decision as to type-setting machine, German. Simon W. Hanauer. 563
law, Modification of the English. 1724
Parker, Death of Charles. 247
Parting tool for the hand lathe, A. Carroll Ashley. *951
Partner, An experience with a rich. A. Tyke. 1793
Partners, Making strenuous workmen junior. Pittsburg. 305
Pasting paper to iron or steel. 1548
Patching a locomotive cylinder. W. Osborne. *834
Patent disputes wanted in Germany, Special court to settle. 1189
for a homogoblinometer. 1062
guarantee company, A. 234
infringement, No redress against Government in case of. 499
law, Modification of the English; right of appeal in the U. S. Patent Office. 1724
W. D. Groesbeck. 1792
Office, Inks in the. 1773
Office, Number of employees in German. 743
regulations, New French. 238
Patents. See also "Invention," "Inventions," "Inventor," "Inventors."
Patents in relation to manufacturers—Interesting figures; results of thorough examination system; taxing patents. 1332
Frank Rattek. 1519
H. J. Eberhardt. 1687
Report of the Commissioner of. A. F. Tennille. 309
Paterson's fame in France. 468
Pattern. A bracket—Unwritten instructions. S. H. Bunnell. 639
A combination cone. J. B. G. *28
A quickly made flywheel. Rush. *1413
and the molding, Making a cone pulley. J. L. Gard. *199
"Hobo." 344
endwise, Drawing strips of a lathe bed. Francis W. Shaw. *1406
for a cast steel magnet ring. B. M. *958
for a semi-circular pipe, Making a. Albert Clegg. *1264
letter cabinet, A. Dayton. *1127
letter mold, A. Dayton. *1125
Making a cone pulley. John M. Richardson. *322
Wm. Newton. 630
Making a valve wheel. Francis W. Shaw. *26
Molding two pinions with one. S. H. Stupakoff. *411
on molding machine, Return bend. Molding Machine. *1344
repairs, Using plaster of Paris instead of wax for. G. P. Campbell. 477
shop and storage at Milwaukee, Cross-section of new Allis-Chalmers. *844
shop economies; waste lumber; system and order; racks for lumber and scraps. J. L. Gard. 808
Foreman Pattern Maker. 1129
Wm. Newton. *1265

PAGE

Pattern shop, Planing out of wind in the. Old Bob. 954
W. E. D. 1751
shop suggestions—Pockets for tools; bench; position of vise. Vanderbilt. *806
Suggestions. 1267
shop trimmer, The. Trimmer. 1273
shop wrinkles—Glue scraper; fillet block; holders for thin work on band saw and buzz planer; roll for sharpening gouges; ellipsograph; block for holding pencil to divider leg; cutting-off gage for circular saw; strengthening exposed edges of leather fillets. John M. Richardson. *1249
Stopping off from the middle of a. Francis W. Shaw. *1549
work—A mold for gaggers for the foundry. C. Neil. *1272
work—Asbestos for thin cores. Chas. A. Heald. 953
work—Molding a rope sheave. William Newton. *200, *630
"Hobo." 344
work—Molding a rope sheave; core prints; long bosses. Francis W. Shaw. *635 637
work, Nails in. J. L. Gard. 947
work, Stopping off and saving. John M. Richardson. 613
Albert Clegg. *1264
work, The difference between good and bad—Designing, finishing, corners, fillets, draw plates, measurements. X. *1394
work, "X-ray." Billy Murphy. 497
G. Schneider. 961
Patterns, A standard classification of. 67
Fillets and rounds on. Stevoe. 949
Filleting wooden. Patternmaker. 342
Old Bob. 639
Plumb Bob. 808
for screw propellers, Making drawings and. Old Bob. *530
Young Bob. 850
for special pipes, Loam. George Buchanan. *1276
Grinding wood. Old Bob. 1763
Leather fillet for. A. G. Butler's. *215
Long bosses on. Francis W. Shaw. *635
Making worm or screw. Old Bob. *31
Mechanical devices for withdrawing parts of. S. H. Stupakoff. *378
Molding pipes without. Francis W. Shaw. *1393
not always profitable, Altering old. Gerald E. Flanagan. 1164
by their sizes and shapes, Storing. G. E. Flanagan. 1787
Suitable; enough tools for molders; saving material on piston rings. R. C. Cunningham. 1230
Patternmaker's clamp, Improved. Hans Jorgensen's. *40
lathe, Tools, centers, face plates, etc., for the. John M. Richardson. *466
tool chest with combination drawer pulls, A. Tool Chest. *1270
vise, A. J. L. Gard's. *1869
Patternmakers, A corner rounding tool for. C. W. Putnam. *803
A new varnish pot for. Diamond Clamp & Flask Co.'s. *1[illegible]3
Inadequacy of incomplete drawings for. Machinist. 990
Small planes for. X. Y. *1091
J. E. P. 1457
tried to countersink smoothly, How three. A Rounder. 1281
etc., A new trimmer for. Diamond Clamp and Flask Co.'s. *357
Patternmakers' tool chests, Dress suit cases and. Old Bob. 197
"Hobo." 344
C. Fremont. *633
tools, Selecting. Mech. 1235
Patternmaking, Faultfinding about allowances in. Patternmaker. 1271
—Molding bosses on castings. John M. Richardson. *1105
—Planing taper core boxes. Lucien I. Yeomans. *1412
Pause at each end, Layout for a reciprocating motion with a. R. C. *994
Pawls on the milling machine, Making. Mac. *31
C. W. Coburn. *625
Pawnbroker with a caliper, Swindling a. W. E. W. 494
Pay for spoiled work in a jobbing shop? Who shall. 38
Bell Crank. 210
Peck, Death of Robert L. 1462
Peening. See "Straightening."
Pencil, A help in copying with a copying. Ahora. 849
A vertical tracing. M. E. D. *1281
Pendulum watch, A. W. A. Warman. 191
Pens, Breaking in steel lettering. Oliver B. Zimmerman. 274
200 years old, Drawing. *617

PAGE

Perforating flat and cylindrical sheet metal. Joseph V. Woodworth. *1708
machines, Two jigs and sensitive drill used in spotting, drilling and counterboring holes in wheels of leather. Joseph V. Woodworth. *155
thick brass caps. Umbrella Mender. *346
Perpetual motion—A power multiplying air compressor. Wm. S. Rowell. *1234
motion chimney, A. 534
motion machine, Daniel Quinn's. 911
motion. W. H. Booth. 1673
F. P. Avery. 1553
Perspective drawings—A new phase of machine design. 1284
Julius Kreis. 1345, *1653
W. H. S. 1486
Lawford H. Fry. *1649
J. W. B. *1654
Peru, Machinery demand in. 1854
Petroleum. See "Oil."
Pettis, Death of George C. 1774
Philippine machinist, A. *990
Philistine on education, *The*. 521
Phosphor bronze, Liquid for working. (5) 500
Photographs as records of miscellaneous jobs, Kodak. E. R. Plaisted. *239
Photographic camera improvement for nearby objects. G. Schneider. 1716
exposures, A diagram for. F. W. Seidensticker. *1706
prints, Home discovered process for making. W. H. S. 1457
Physics, Principles of. By F. M. Gilley. †499
Pickling solution, Adding fresh acid to a. (9) 775
Picture of a dynamo by Jean Veber, Symbolical. 677
Picture of a dynamo by Jean Veber, jobs, Kodak. E. R. Plaisted. *239
Piece work and other wage systems, The. John Richards. 658, 676
work compared with gift propositions for paying workmen. Frank Richards. 1798
work in American shops. 739
work on the B. & O., Possible strike against. 999
work, the premium plan at works of David Rowan & Co., and Mr. Taylor's plan. E. G. Herbert. 259
James Rowan. *49, 735
work, etc., The premium plan. F. A. Halsey. 292
Milwaukee. 380
F. Wilton James. 417
Piercing conical shells, A quadruplicate, automatic-slide die for. William Doran. *332
Pillow blocks, Remedying knocking of. W. Osborne. 621
Pin in vise jaw, Locating a stop. W. E. Callaghan. *950
Punches and dies for making a large safety. William Doran. *262, 312
Pins, Filing crank. H. Rolfe. 24
Errata. 196
for gaging alinement with a cylinder. I. W. Payler. *959
instead of milling, Press notching of steel. W. *703
Ping pong balls, American manufacture of. Joseph Misko. *1690
pong balls round, British secret of turning. 771, 774
Pinions, Calipering interchangeable racks and. E. E. Winship. 25
with one pattern, Molding two. S. H. Stupakoff. *411
Pipe, A drawing table of gas. W. H. S. *163
coil threading machine. Reliance Machine & Tool Co.'s. 103
coverings, Tests of steam. Geo. H. Barrus. 814
direct from the blast furnace, Casting. Francis W. Shaw. 1866
Explosion of a paper machine roll made of. E. M. Cross. 735
fitting, A drawing of a. Machinist. *1754
flange on the molding machine, Molding a. Milwaukee. *1792
hanger, Careless design of a. Peter H. Bullock. *1395
joint, A large expansion steam. Engineer. *1203
joint, A universal flexible. Herman Fletcher's. *335
joint, An improved. A. Bollinckx. *341
joint for a 16-inch high-pressure main, A swiveling. R. E. Curtis. 815
joints tight, To keep. John E. Sweet. 1315
Making a pattern for a semi-circular. Albert Clegg. *1264
questions, Some boiler. Engineer. *1488
roller, A. F. W. Harris. *30

PAGE

Pipe stock. Wm. W. Vosper's. *1030
Stretching cast iron steam. Geo. J. Meyer. *764
tee surfacing machine. Edward P. Walter's. *577
threads, English. W. H. Booth. 1286
threads, Some notes on cutting; die for large pipe. J. H. Dunbar. *1423
-threading machine, Electrically driven. D. Saunders' Sons'. *235
unions, Supplementary report of committee on standard. 814
up to intersection with a sphere, To find the volume of a. Anonymous. *1456
Edgar H. Berry. *1679
wrench. W. H. Ermentrout's. *1237
wrench, The Eagle. Frank Mossberg Co.'s. *216
Pipes, Boring long. Traveler. *16
in the lathe, Facing large. W. D. S. 1409
Loam patterns for special. George Buchanan. *1276
of different lengths, Molding; Ring cores. Geo. Buchanan. *491
The flow of natural gas in. William Cox. 401
(Referring to computer) 1515
without patterns, Molding. Francis W. Shaw. *1393
Piping for forges, Fans and. Wm. Sangster. *586
Proper sizes of gas. 301
etc., Mistakes in cutting gaps in beams for. Gerald E. Flanagan. 994
Piston acceleration, A graphical determination of. J. N. Le Conte. 818
Explosion of a. 499
head and pillow blocks, Remedying knocking of. W. Osborne. 621
head fits, Gas engine. W. Osborne. 1459
head in a cylinder, Fitting a—Shop temperature. W. Osborne. 1193
packing rings, Laying out Dunbar. H. F. Killean. *1132
-ring grinding machine. J. E. Reinecker's. *1788
rings for gas engines, etc., Making. A. Bollinckx. *1414
George Woodbury. *1765
rings, Turning eccentric. A. B. C. *206
rod break and quick repair, A wonderful. J. N. Germain. *1263
rods and stuffing box followers, Making. Tecumseh Swift. 961
rods, Gap grinding machine for locomotive. Norton Grinding Co.'s. *1629
rods, Old and new cost of grinding. Prof. Sweet. *1587
Pistons, Fitting gas engine. 1351
Cheroot. 1454
Pitch, Laying out spiral gears by circumferential. Theodore. *418
See also "Gear," "Gears," "Gearing."
Plan of progress, The invincible. Tecumseh Swift. 1636
Plane, Truing a belt with a. Geo. J. Meyer. 1119
Planes for patternmakers, Small. X. Y. *1091
J. E. P. 1457
Planer, A rotating dash pot used in an attempt to increase the return speed of a. C. H. M. *960
A "wiring" job on the. Carroll Ashley. *878
—An indexing fixture for machining clutch collars, etc. Carroll Ashley. *1419
and jointer, The Oliver hand. American Machinery Co.'s. *1452
arranged for setting cross-rail at any desired angle. Hulse & Co.'s. 1351
at Nordberg Mfg. Co.'s plant, Motor-driven. *935, *936
attachment, A time-saving. H. A. Coombs. *1078
Attachment for milling worms on the. Adams Co.'s. *1546
chuck, A crane for a. W. A. Warman. *191
T. H. Miller. 342
Cutting a peculiar cam on the. J. F. Van Horne. *480
drives, A Cosmopolitan. 665, 677
Electrically operated. G. A. Gray Co.'s. *401
for locomotive cylinders, The open side extension. Detrick & Harvey Machine Co.'s. *94
foundations. L. H. Colburn. *1232
Grinding out dies with wheel mounted on. Carroll Ashley. *1269
hand, A drunken. W. Osborne. 1859
head swivel box, Repairing a. H. E. B. *1485
Holder for thin work on buzz. John M. Richardson. *1249

PAGE

Planer inventions, Some early—Driving and reversing mechanisms. Howard O. Coombs. *151
inventions, Some early—Early Whitworth planing machine; detail of drive; double tool arrangement; tool reverse; a planer without slides, etc. H. A. Coombs. *11
jack. Armstrong Bros. Tool Co.'s. *500
knives, Tempering wood. 329
Lodge & Shipley Machine Tool Co.'s variable speed countershaft arranged for driving a. *1189
—Planing a large cylinder; a rack extension. A. G. Children. *766
table racks, Shaper for machining Sellers; scraping lathe and planer parts; planer tool for splining a long sleeve. H. Goldsmith. *1114
—"The machinist and the modern lathe." *1751
To improve the wood. Billy Murphy. *451
tool, An expanding. C. W. T. *801
tool An improved expanding. John Scott. *196
tool to correct position of central slot of milling machine table, Adjusting. *869
tool to hight with inside micrometer, Setting. D. E. MacCarthy. *1279
Tools or tool holders for internal work on the shaper and. Isaac Morgan. *25, 491
W. H. B. *193
B. A. Roberts. *203
B. D. Tillinghast. *209
S. B. M. *488
E. R. Markham. *492
H. E. D. *494
tools, Slotting, "putting on" and "hog nose"; support for planer work; depth gage. Carroll Ashley. *1766
Two old lathes combined to make a rotary. James Menegus. *1516
V's, Oil grooves in. John Randol. 374
vs. buzz-saw. Ferd. Wertheim. 766
C. Neil. 1022
work, Awkward; grinding circular planer tools; planing a grooved roll. Carroll Ashley. *419
Planers, A quarter-century's progress in. Bement, Miles & Co.'s; Betts Machine Co.'s; Hendey Machine Co.'s; New Haven Machine Co.'s; Niles Tool Works Co.'s; Pond Machine Tool Co.'s; Pratt & Whitney Co.'s; Wm. Sellers & Co.'s. *1604
German open side. Billeter & Klunz's. *321
method of planer lubrication, etc., Bodmer's hand, circular and open-side. Howard A. Coombs. *370, 388
etc., A new vise for. Hill Tool Co.'s *1030
Planimeter, An improved arrangement of the hatchet. Frank B. Kleinhans. *1017
M. E. 1314
Planing a large bed plate on a small planer; radius planing attachment for the shaper. James F. Willey. *1753
and drilling, Laying out a forked lever for. C. W. Putnam. *947
attachment, Circular. H. Goldsmith. *1261
Attachment for circular. Carroll Ashley. *208
Emergency arrangement for circular. J. N. Germain. *204
helical grooves: A workman's trick. Lathe Hand. *490
H. Du Rose. *799
lathe beds—Templets and finishing tool. H. L. Cameron. *1766
lathe carriages. H. L. Cam. *1768
laundry mangle circular steam chests, Attachment for. Cincinnati Planer Co.'s. *721
Leaving a strip for cutting a base for. Gerald E. Flanagan. 880
"out of wind." Old Bob. 954
W. E. D. 1751
taper core boxes. Lucien I. Yeomans. *1412
tinned crossheads, Tool for. J. F. W. *22
tool, A T-slot. G. H. K. *483
Plant of the Boston Edison Co., Atlantic Ave. electric. I. E. Moultrop and R. E. Curtis. 815
Plaster of Paris, Hardening. 563
of Paris instead of wax for pattern repairs, Using. G. P. Campbell. 477
Plate, A ball-bearing drilling. C. Aliper. *14
boring mill, Gallery. Allis-Chalmers Co.'s. *695

PAGE

Plate, Jig for drilling a circular. Cleveland. *1026
Molding a brass cover. Geo. Buchanan. *328
press, A chilling. J. W. *911
springs, Diagrams for semi-elliptic. See "Springs."
Plates, Diagrams for the thickness of boiler. James A. Brown. *300
Gates, cards and. S. H. Stupakoff. *410
Table for finding the thickness of boiler. Geo. F. Summers *92
Plating brass with copper. A. H. G. Schneider. 476 961
Platt Bros. & Co., Textile machinery works of. 1462
Play of the calipers, The. See "Fits."
Plugs, Adjusting chasers for sizing. Isaac Morgan. *1136
Special adjustable and renewable standard. M. W. Leech. *349
Plunger, Making a pump—Details of a lathe job and the time. B. W. T. *939
"Tramp." 1128
Pneumatic gun plant, Sale of the Sandy Hook. 996, 1173
tools, Introduction of. Census Bulletin. 1645
tools, The rise of. 1584
Pneumato-electric analogy, A. 69
Pockets for tools, etc., in pattern shops. Vanderbilt. *806
Suggestions. 1267
Poetry—John Fritz. Rossiter W. Raymond. 1031
—The engine driver to his engine; The coachman of the Skylark. 1233
—The engineer. 1175
—The mathematician in love. 1063
—Waiting. 1639
—When I hear the whistle blow. Woodworth. 1580
Pointing wire. Peter Chiampon. *1552
Points for calipers, Changeable. Walker Tool Co.'s. *774
Polishing attachment for twist drill grinder, Grinding and. L. S. Heald & Son's. *1317
band used in finishing shanks of long nut taps, Gardner grinding and. *1109
machines, Scope of law relating to. 213
Polyphase apparatus and systems, Standard. By M. A. Oudin. †775
Pooling, Mine workers to fight railroad. 710
"Popcorn and popcorn only." A Cosmopolitan. 551
Portable tool system, The. Census Bulletin. 1645
Portugal, Western Spain and Madrid, Trade matters in. Henry L. Geissel. 1019
Post for heavy turning on chucking lathe, A tool. Wm. H. Brooks. *486
for round steel of different sizes, Lathe. F. H. Sovereign. *206
Postage on drawings. W. S. R. 946
Lida M. Bromall. 1142
Postal privileges and humbugs, Second-class. 707
Posted, Keep. D. E. M. 957
Pot for cyanide hardening, Sheet steel. Theodore. *338
for pattern shops, A new varnish. Diamond Clamp & Flask Co.'s. *1773
Heating a glue. A. G. Children. *947
Potts, Walter M.—Building American machinery in Russia. 134, 423
W. M. Potts. 163
Poverty—A Study in Town Life. By B. Seebohn Rowntree. †1141
Powder, Recklessness of workmen in gun. S. F. Arthur. 1722
Power, An analysis of the commercial value of water. A. F. Nagle. 1799
and Power Transmission. By E. W. Kerr. †452
by gearing, Doubling the horse-; Pushing a wagon forward while on it. Y. Z. 1269
Curves of progress in. Sidney Graves Coon. *92
Folderol about coal and. 1204
for the lathe, Too much. Mc. 339
in drilling cast iron, Electrical tests of. See "Drilling."
multiplying air compressor, A. Wm. S. Rowell. *1234
needed for a line shaft in cold weather, Extra. Transmission. 445, *762
J. H. Dunbar. 592
Plants of the Pacific Coast, The. By F. A. C. Perrine. †854
plants, The development of—Engine speeds, electric work, types of engines, efficiency, boilers, pressure, superheating steam, steam turbines, gas engines, etc.—View of 8,000 horse-power Manhattan Elevated Railway engine. Fred R. Low. *1590

PAGE

Power, Progress in gas engines and gas. W. H. Booth. 1318, 1374
required to drive machine tools, The need of investigations of the. Dodge & Day. 1689
The position of the United States in the production and utilization of electric. Sidney Graves Coon. *552
to replace six mules on a railway. Eighty horse. 1093
transmissible 300 miles, Electric. 762
transmission, Success in long distance. F. A. C. Perrine. 1447
used in United States, Steam. Carroll D. Wright. *1576
Practicalizing an invention—A coin assorter. J. A. Webster. *1137, 1140
Pratt, Death of Francis A. 279, *310
& Whitney Co., Notes in shop of—turret lathe attachment for gears; milling fixtures. H. Goldsmith. *1747
Precision in iron casting, Steel cores for. Lucien I. Yeomans. 1141, *1263
Francis W. Shaw. *1760
Premium plan accepted by the trade unions of Great Britain, The. 1426
plan among workmen, Popularity of the. D. Addie. 164
W. A. Warman. 304
plan at the works of the Bickford Drill & Tool Co., The administration of the. *1189
plan at the Blank Blank Engineering Works, The. *906, *1076
Clinton Alvord. *1165
plan at the works of David Rowan & Co., Glasgow, The. James Rowan. 49, 53, 735
E. G. Herbert. 259
Clinton Alvord. *1165
plan before National Civic Federation by F. A. Halsey, Address on. 1835, 1869
Plan for Paying Labor, The. By F. A. Halsey. †499
plan in a university drawing course, The. *1694
plan in Glasgow and on the Clyde, The. Barr & Stroud. *381
plan, Origin of the—A personal statement. F. A. Halsey. 53
W. S. Rogers. 164
plan, The economics of the—Objections considered and answered—Application to coal mining. F. A. Halsey. 296
Milwaukee. 380
F. Wilton James. 417
plan, The London *Engineer* on the. 772
plan, The—Obscure time tickets; information sheet; Where one man operates two machines. Clinton Alvord. *1165
plan, etc.—Compensation of skilled labor. John Richards. 658, 676
plan, etc.—Gift propositions for paying workmen. Frank Richards. 1798
Prentice, Death of Albert F. 1383
Prescott, Death of George W. 1838
Presents, Christmas—A liberal shop proprietor. E. J. B. 193
Press. See also "Die," "Dies."
A chilling plate. J. W. *911
A new arbor. R. K. Le Blond Machine Co.'s. *501
A 35-ton bushing. Watson-Stillman Co.'s. *1539
and engineering prestige, The technical. Rear Admiral George W. Melville. *1574
and slip fits. See "Fits."
board, A punch and die for slitting and cutting off. Toolmaker. *1719
Cold forging handle bar clamp in the punch. E. E. Minard. *1170
Cupping punch and die for double-acting automatic cam. Mattatuck. *1518
—Duplex punching machine. Hilles & Jones Co.'s. *1673
Fine power-feed punching without sub-. Cutter Maker. *201
for forming leather packings. A. D. Gage. 99
Wm. H. Brooks. *303
for hubs on shafts, Hydraulic. Messrs. Young's. *741
for testing driving fit of Hendey-Norton lathe spindle. 413
guards, Punch-. *1186
in the Oil Country, Fixing a printing. W. Osborne. 228
job, A "locomobile" burner. J. L. Lucas. *448
job on the planer, A. Carroll Ashley. *878
Keyseating in the power. Joseph V. Woodworth. *758
notching instead of milling. W. *703
work—A stripper for punching thin disks. H. R. Ash. *203

PAGE

Press work—Cold working sheet metals in dies; formulas for cups; depth to which they may be drawn sizing blanks; coining and armature disk punching press work, etc. John D. Riggs *et al.* 819
Experience. 1056, 1553
H. E. Brown. 1455
work, Doing the impossible in J. L. Lucas. 797
work—Gain by changing a punching and forming operation; Kink where holes near edge of die broke out; Why not stepped cones for power presses? Wm. H. Brooks. *705
work, Huber system of hydraulic pressure. Paspra. 765
work in shop practice, Progress of. 1585
Press work trick, A. A. P. Press. *207
Presses, A new principle in hydraulic —Hand, power bookbinders' and forge presses; stationary and portable riveting machine, portable staybolt cutter, etc. Otto Philipp's invention. *1641
Bell Crank. 1790
—Feeding sheet metal to dies. Joseph V. Woodworth. *1861
of E. W. Bliss Co., etc.—Perforating flat and cylindrical sheet metal. Joseph V. Woodworth. *1708
Pressure necessary for hydraulic ram, To find. (10) 775
Price for a job—Kicks and kickers. W. Osborne. 1648
Prices abroad, The steel trust's. 440
in Germany and America. 1173
of goods purchased for a specific use, Recording. Kenneth Falconer. *1648
Print, Manuscript and drawings for. 623
Prints, Core. Francis W. Shaw. *635
Printing press in the Oil Country, Fixing a. W. Osborne. 228
Printing presses preferred, American. 524
Prison invents sewing machine, Machinist in. 1059
Private stocks of tools. X. 34
I. W. Payler. 339
Prizes for beautifying workmen's homes. 1019
Problem, An Industrial. By W. S. Rogers. †1662
Problems, Some jobbing shop. 38
Bell Crank. 210
Products of the United States. Hon. Ludwig Max Goldberger. 1772
Production and prosperity, The volume of. 1575
Increasing foundry. David Reid. 1159, 1172
The Cost of. By C. J. Watts. †1031, 1093
Profiling fixture for bicycle fork heads. C. D. King. *736
machine, A new. Pratt & Whitney Co.'s. *1361
Profit sharing plan, American Smelting & Refining Co. adopts. 677
Progress, Curves of steam engine. Sidney Graves Coon. *91
in iron manufacture. Archer Brown. *1598
in machine building, etc. Prof. Sweet. *1586
in machine construction, A review of. Prof. Dr. Reauleaux. *1623
in machine shop practice, Twenty-five years'. 1581
in machine tools, A quarter-century's—Drillers, lathes, planers, shapers, millers, screw and turret machines, boring and turning mills, grinding machines. *1600, 1638
in Naval Engineering. Rear Admiral George W. Melville. *1572
in twenty-five years, Electrical. Thomas Commerford Martin. *1594
in twenty-five years, Foundry—Molding machine, skin drying, etc. Harris Tabor. *1596
of Cincinnati during the past twenty-five years, The machine tool. 1622, 1726
of the machine tool industry during the decade 1890-1900. From Census Bulletin. 1643
The invisible plan of. Tecumseh Swift. 1636
The retrospect of a quarter-century of. Robert H. Thurston. *1569
Projectile, Krupp's reported new. 851
Projections, Arrangement of. L. O. Danse. 1284
Propeller, Cutting a keyway in a. I. W. Payler. *959
Propellers, Making drawings and patterns for screw. Old Bob. *530
Young Bob. 850
Prosperity, Volume of production and. 1575
Protectors for foundry workers, Foot. 740

PAGE

Protractor, Laying off angles without a. A. D. Williams. 165
Public necessities, Ownership of. 1546
to capital and labor, The relation of the. Charles Zeublin. 1430
Publication. See also "Journal," etc.
in the AMERICAN MACHINIST and the *Engineering News*, Concerning the selection of matter for. 820
Manuscript and drawings for. 623
Reference letters on drawings and manuscript for. 1030
Publishing the news, Independence in. 710
Pulley—A new friction countershaft. Smith Single Belt Reversing Countershaft Co.'s. *1304
—A new variable speed countershaft. Lodge & Shipley Machine Tool Co.'s. *414, *1188
—A speed changing device. *565
and steel pulley with wood rim, All-steel. Oneida Steel Pulley Co.'s. *103
arms in their rims, Fastening. Arthur Bollinckx. *203
belt shifter, Cone. T. A. B. *481
boring bar and fluted reamer. Peter Chiampon. *1552
Company building many large variable speed transmissions, Reeves. 710
—Countershaft reversing mechanism. Upton & Gilman's. *1557
Countershaft with grease lubrication for loose. C. H. Besly & Co.'s. *1111
Fixing a loose. Woodworker. *1266
—Friction countershaft. Wheaton Machine Co.'s. *794
Grooved. See "Sheave," "Sheaves."
hub, Enlarging a hole in a. Mechanicus. *491
Improved speed changing. Speed Changing Pulley Co.'s. *124
in middle, Size of long line shaft with driving. (4) 215
molding, Cone. Francis W. Shaw. 636
—New countershaft. Hill, Clarke & Co.'s. *1662
—New design of variable speed device. Reeves Pulley Co.'s. *1461
pattern, A combination cone. J. B. G. *28
Wm. Newton. 630
pattern and the molding, Making a cone-. J. L. Gard. *199
"Hobo." 344
pattern, Making a cone. John M. Richardson. *322
pattern work, X-ray. Billy Murphy. 497
G. Schneider. 961
Reboring a. Edward De Hart. 1761
Semi-automatic friction. Hawkins Mfg. Co.'s. *1030
sleeves from neglect of the oil can, Trouble with clutch. S. P. Y. 672
—Speed changing devices. See also "Speed."
The largest wood. 1867
transformer—Moore & White's variable speed mechanism. Walter Ferris. *944
with friction clutch. Casner Pulley Co.'s. *1062
Pulleys—A diagram for the solution of problems in belting. Frank B. Kleinhans. *988
Babbitting loose. (3) 215
Calculating back gear ratios to suit cone. A. C. 985
—Estimating length of driving belts with Cullman diagram, etc. Jon. *1828
flat, Lathe hand who "crowned." Joseph V. Woodworth. 4
—Intricate belt drives. *760
J. L. Gard. *1085
Francis W. Shaw. *1517
Limits of accuracy in boring. See "Boring pulleys."
Ventilated. W. *909
Why not drive power presses with stepped cone. Wm. H. Brooks. 705
Pump, A boring rig for a. C. K. Witmer. *1764
above its supply, Finding the elevation of a. W. Osborne. 5
C. F. Schaeffer. *197
An early steam. W. Osborne. 375
An oil. Hoeier Mfg. Co.'s. *357
Fireman's hand caught in. 1286
from rusting, To keep a steam. W. Osborne. 516
Job wanted after connecting a valve to a. Mike Lunkhed. 1122
lubricant, Tallow as an engine and. W. Osborne. 1398
packings, Press for forming leather. A. D. Gage. 99
Wm. H. Brooks. *303
plunger, Making a—Details of a lathe job and the time. B. W. T. *939
"Tramp." 1128

PAGE

Pump room of blast furnace at Audun-le-tiche, Lorraine, Electric. Frank C. Perkins. *547
that would not pump, An oil. W. H. L. *349
valve with glass, A boy's experience in grinding in a. W. Osborne. 1587
etc.—A small hydraulic installation. Bell Crank. *1718
Rotary. John T. Wilkin. 1799
Pumping arrangements, Oil well. W. Osborne. *579
Ejectors worked by water. Fred. H. Colvin. 1343
engine, Facing curved flanges for. Wabbler. *201
oil by compressed air. H. F. *211
oil wells, The Reid gas engine for. F. J. M. *549
Punch, Punches, Punching. See also "Die," "Dies," "Press," "Presses."
and die for many small holes in "locomobile" burner. J. L. Lucas. *448
Circular shearing with a. W. *1277
for centering small spindles. B. O. Butler. *1757
for cutting large washers, Hydraulically operated. C. Patterson. *1024
for transferring holes. A. H. Cleaves. *8
-holders and dies, A simple method of locating. Harry Ash. *1418
into a bolt header, Converting an old hand lever. R. W. J. Stewart. *450
press, Cold forging handle bar clamp in the. E. E. Minard. *1170
Punches, Burning steel in making. L. O. Danse. 1419
Making dies for forging boilermakers'. Theodore. *806
of electrical tabulating machine, Gang and key. *1073
Spacing center. A. R. Bailey. *29
E. R. Plaisted. *32
Punching and forming dies, etc., for jewelers' work. Frank Greiner. *590
and bending die, A sheet metal. J. P. Appleby. *732
and forming operation, Gain by changing a. Wm. H. Brooks. *705
brass clock gears; movable stripping devices. Wm. Doran. *1544
Thos. W. R. McCabe. 1659
conical shells, A quadruplicate automatic-slide die for. William Doran. *332
flat and cylindrical sheet metal. Joseph V. Woodworth. *1708
four holes at right angles. "Needle." *192
holes in coin assorter, Dies for. J. A. Webster. *1137, 1140
leather shoe tips, Dies for. Joseph V. Woodworth. *469
machine, Duplex. Hilles & Jones Co.'s. *1673
thick brass caps. Umbrella Mender. *346
thin disks, A stripper for. H. R. Ash. *20.
without sub-press, Fine power-feed. Cutter Maker. *201
Purchasing department, Some details of the card index system in the. F. H. Leland. *1482
Purdue University erecting a building

Q

Quadrant or altimeter 200 years old. *620
Quimby, Death of Everett E. 312
for historic locomotives. 710

R

"Racing" as a cause of flywheel accidents. 1367
Rack cutter made from shaper. H. Goldsmith. 1398
extension for a planer platen, A. A. G. Children. *766
for drills and taps. S. V. S. *204
Racks and pinions, Calipering interchangeable. E. E. Winship. *25
Pattern lumber and scrap. Wm. Newton. *1265
Shaper for machining Sellers planer table. H. Goldsmith. *1114
Radiator, Heating a glue pot on a. A. G. Children. *947
Rail clips and stops for crane runways. F. D. Buffum. *241
E. R. Plaisted. *591
drilling machine, Three spindle. Newton Machine Tool Works'. *865
to Mr. Carnegie, Presentation of first T-. 246
Rails, An inventor of a device for removing ice from. W. Osborne. 1305

PAGE

Railroad—A Typical Shop to Serve a Road or Division Equipped with 310 Locomotives. By L. R. Pomeroy. †998
brass founding. C. Vickers. 1400, *1712, *1745
Club, Paper on electrically driven shops, by Robert L. Warner, before the New England. 1838
engineering reminiscences: Taken for a tailor; the Forney locomotive; elevated railway traction; curves. M. N. Forney. 1299
freight cars, Effects of a new rule about. 1092
freights on the continent. F. C. C. 1790
officials entitled to second-class rates, Pocket list of. 707
pooling, Mine workers to fight. 710
rates for freight shipments, Secret. 533
shipping facilities curtailed. 1692
sued for alleged damages incurred through rebates. 134
train from Paris to Pekin. 1835
tunnel accident and the coroner's verdict, The New York Central. 166, 356
violated statutes in bringing armed guard into Wyoming, Union Pacific. 1061
work, The value of up-to-date tools for. M. K. Barnum. 729
wreck—Reading incredible things. Theodore. 493
Railroads advance wages. 1692
Comparison of personnel of Pennsylvania and New York Central. 306
—Growth of the locomotive during the last quarter-century. O. H. Reynolds. *1625
High speed with electricity on German. 731
—Progress in locomotive and car construction during the decade 1890-1900. 1381
said to have agreed on coal mining and hauling, Two. 1351
Railway and other electric power, Statistical position of the United States as to the use of. Sidney Graves Coon. *552
and the question of wages, Cost of the Siberian. 215
at blast furnace of Audun-le-Tiche, Lorraine, Inclined. Frank C. Perkins. *547
Eighty horse-power to replace six mules on a. 1093
Moving stairway for the New York underground. 1427
Queer methods on the elevated—Straightening and drilling rails. 1236, 1317
speed claimed to be broken, World's record of. 595
—The New York Rapid Transit tunnel. †1174
Unique record of the Manhattan Elevated. 884
Railways, An English blunder about damages paid by New York elevated. 1061
Street—Ten-hour law in Rhode Island constitutional. 999
System for rapid transit in underground. John E. Sweet. 1167
James B. Stanwood. 1313
Ram of shaper used in making Sellers planer table racks. H. Goldsmith. *1115
Ratchet teeth, A shaper rig for cutting internal. H. E. B. *494
wrench and drill, Universal Mfg. Co.'s. *454
Ratchets, reversible and otherwise, Silent roller. W. *910
James A. Horton. *1026
Ratcheting, Holding back a twist drill in. Robt. A. Lachmann. 1269
Rates for freight shipments, Secret. 533
Reader, A diligent and appreciative. Elmer E. Sweeny. 195
Readers, Our first. 1593
Reading, An apprentice's need of technical. W. Osborne. 1588
mechanical papers, Result of. R. H. Jackson. 1691
Reamer an old fossil, The rose. Knocker. 344
for pulleys, etc., Fluted. Peter Chiampon. *1552
Rimer or. B. Esmarch. 1026
with adjustable blades, A. W. R. G. *494
Reamers, Hardening long. E. R. Markham. 761
Cherry Red. *1490
Reaming straight; jig for holding snap limit gages while being drilled, reamed and tapped. W. E. Hunter. *638
Rebates, Suit against railroad for alleged damages through. 134
Receipt slips with card index system in the purchasing department, Partial. F. H. Leland. *1484

PAGE

Reciprocating motion with a pause at each end, Layout for a. R. C. *994
Reciprocity and foreign trade, The opinions of machinery manufacturers on. 242, 246, 274, 307, 383, 388, 389, 564
discussed by the National Association of Manufacturers. 594
International Arbitration and. By William F. King. †990
League, The National. 855, 1774
Recklessness of cartridge factory workmen. S. F. Arthur. 1722
Record system for changes in drawings, A. S. A. Worcester. *1674
Records of miscellaneous jobs, Kodak pictures as. E. R. Plaisted. *239
Recording machine for engine tests, An automatic. E. C. Oliver. *289
prices of goods purchased for a specific use. Kenneth Falconer. *1648
Red tape. W. Osborne. 726
Reds vs. yellows. 1316
Reducing valve, A large differential action. Nordberg Mfg. Co.'s. *1161
Re-echoes from the Oil Country. See "Orders," "Screw cutting."
Reference Library, Modern Engineering Practice, American School's. †1773
Refrigeration, Cold Storage and Ice Making. By A. J. Wallis-Taylor. †854
Registering caliper, A. R. *804
Reheating. See "Heating," "Hardening."
Reliability of workmen, The. W. D. Taylor. 326, 354
Relieving the teeth of milling cutters, A simple lathe attachment for. Frank W. Parker's. *422
Reminiscences of a chip maker. W. Osborne. 1587
of M. N. Forney. 1299
Renshaw, Death of Joseph B. 711
Rent, Russell Sage's. 675
Repair shop considerations—Men, customers, cost, hurry, etc. W. Osborne. 1801
work right, Exceeding orders to make. W. Osborne. 691
Repairs of engines, etc.—Getting work in hard times. W. Osborne. 663
Repairing a boiler at night in a hurry. W. Osborne. 759
Report, Lathe inspector's. H. Goldsmith. *789
Respiration calorimeter, The. Frederick Hart's. *1297
Rest, A self-centering steady. E. C. Thulin. *520
Adjustable steady. Charles H. Clare's. *390
for cutting long lead screws. H. Goldsmith. *1115
for grinding, Novel steady. W. E. Callaghan. *950
Ratchet feed for compound. J. Green. *1771
Restaurant of General Electric Co. 1253
Resting belts. L. O. Danse. 20
Retorts of different lengths, Molding. Geo. Buchanan. *1131
Return speed of a planer, A rotating dash pot used in an attempt to increase the. C. H. M. *960
Reverberation from the Oil Country, A. W. Osborne. *578
Reversible roller ratchet, A silent. W. James A. Horton. *910 *1026
Reversing a drawing—"X-ray" pattern work. Billy Murphy. 497
G. Schneider. 961
mechanism. Chas. W. James'. *1061
mechanism, Countershaft. Upton & Gilman's. *1557
mechanisms, Early and later planer. Howard O. Coombs. *11, *151
Review and a glance forward, A. Prof. Sweet. *1586
of progress in machine construction, A. Prof. Dr. Reauleaux. *1623
Retort to criticism in a book. 553
Rich partner, An experience with a. A. Tyke. 1793
Right or left hand? See "Habits."
Ring cores for pipes. Geo. Buchanan. *491
Pattern for a cast steel magnet. B. M. *958
segments, Fixtures for finishing cast iron. D. E. MacCarthy. *334
segments, Gaging the ends of. C. S. Beach. *1760
Rings for gas engines, etc., Making piston. A Bollinckx. *1414
George Woodbury. *1765
from the inside, Drilling. Lathe Hand. *490
Hardening tool-steel. E. R. Markham. *180
Laying out Dunbar packing. H. F. Killean. *1132
Making thin threaded brass. Joseph V. Woodworth. *2
Small jig for drilling holes in brass. Ver. I. Nier. *557

PAGE

Rings, Special chuck for brass. Joseph V. Woodworth. *758
Turning eccentric piston. A. B. C. *206
Riots and coal monopolies, Food. 741
Riveting machines after Otto Philipp's hydraulic principle, Stationary and portable. *1642
Bell Crank. 1790
Road man, Observations of a—Gas engines. T. A. B. 21
Rod break and quick repair, A wonderful piston. J. N. Germain. *1263
clamp, A universally adjustable. W. *909
for milling attachment, Splined. H. Goldsmith. *790
support, Adjustable. H. Goldsmith. *1115
Rods, Machining side. Frank Rattek. *948
Roll exhibit at Krupp hall of Duesseldorf Exposition. *1447
Planing a grooved. Carroll Ashley. *419
with a small lathe, Turning and grinding a large. Chas. A. Trask. *704
Rolls, A special tool for cutting out large fiber washers for embossing. Joseph V. Woodworth. *1720
Hardening tool steel. E. R. Markham. 263
Cutting off rubber. Machinist. *1762
Roller, A pipe. F. W. Harris. *30
bearings. See "Bearings."
chain, The proposed standard. J. O. Nixon. *13
C. E. Whitney. 133
Cutting a steep pitch screw in a stone; turning calico; truing a roller of bristle ends. Francis W. Shaw. *488
extensometer, A. Gus. C. Henning. 816
ratchets, Silent reversible and non-reversible. W. *910
James A. Horton. *1026
table of blooming mill, Machining jaws in housings of. A Pittsburgh Machinist. *1134
Rolling mill invention, John Fritz's. Chas. T. Porter. 1658, 1660
mills, The treatment of machinery in. G. E. Flanagan. 1693
Rope, Ancient methods of testing. E. P. Buffet. *409
block, etc., for use in painting a smokestack. Oil Stone. *956
R. P. King. *1489
driving wheels with special Bickford radial drill, Making segmental. *1153
for cranes, Table of strength of wire. 1011
sheave, Molding a. William Newton. *200, 630
"Hobo." 344
Francis W. Shaw. *635, 637
transmission discussed by E. C. De Wolfe. 416
Rose reamer an old fossil, The. Knocker. 344
Roosevelt on combinations, President. 1774
Rotary engine, A successful. Hult Bros. Rotary Steam Engine Co.'s. *622
Roughing gage. A. Bollinckx. *1345
Rounds on patterns, Fillets and. Stevoe. 949
Rounding head of special screw, Chuck and tool for. H. B. McCabe. *1275
the edges of brass disks. Joseph V. Woodworth. *758
tool for patternmakers, A corner. C. W. Putnam. *803
Rowan & Co., Glasgow, Scotland, The premium plan at the works of David. See "Premium."
Rubber block "to fit," Making a. John Randol. 800
N. A. C. 1413
Discussion on the elasticity of. 1800
plate, Stepping jig for drilling a. Joseph V. Woodworth. *2
rolls, Cutting-off. Machinist. *1762
trust lesson, The. 166
Turning soft. J. B. S. *1134
Rule, A keyseat. C. W. Putnam. *34
I. W. Payler. 339
about freight cars, Effects of a new. 1092
blocks, Keyseat. Sawyer Tool Mfg. Co.'s. *565
Coloring edges of triangular. S. C. Heibe. 382
Rules of order in shops. See "Shop, How to brace up a," "Orders."
for foremen. C. Neil. 1659
Ruler—The straight-edge for the drawing board again. Apprentice. *1519
—The universal drafting machine. Universal Drafting Machine Co.'s. *689
Runways, Notes on design of crane. A. D. Williams. *845

PAGE

Runways, Rail clips and stops for crane. F. D. Buffum. *241
E. R. Plaisted. *591
Russia, A convention of machinery builders in. 305
British manufacturers apparently hoping to profit by American trade difficulty with. 356
Labor disturbances in. 645
Making American machinery in. 134, 423
W. M. Potts. 163
Our machinery trade with. 38
The gentle art of contracting in. 865
Russian and American enterprise compared by Grand Duke Boris. 1575
Rust from tools, Removing. S. and S. 959
Rusting. To keep a steam pump from—A rusted engine and a worthless boiler. W. Osborne. 516
Ryerson & Co. give $1,500 a year to promote engineering. Joseph T. 677

S

Sadlier, Death of John G. 103
Safes, A Yankee's steel. L. O. Danse. 1419
Safety appliances, Elevator. See "Elevator."
pin, Punches and dies for making a large. William Doran. *262, 312
Sage's rent, Russell. 675
Salaries of graduates of regular and scientific colleges, Relative. 598
Salesmen of soft soap and steel hardening mixtures, The ways of. W. Osborne. 988
Cherry Red. 1234
Sand sifter, Improving a. 1174
Sanitation, Improvement in naval; Rear Admiral George W. Melville. *1573
Saunders, Death of Albert H. 1494
Saved by using a gas engine, Use of money. W. Osborne. 1219
Saving and spending by workmen. Wm. H. Brooks. 640
Tecumseh Swift. *641
in one department and losing in another. G. E. Flanagan. 1685
Saw, A home-made power hack. Country Boy. *1554
A new power hack. L. H. Olmstead. *1803
A new shop cold. Reade Machinery Co.'s. *501
Action of a wabbling. *790
by peening, Straightening a circular. G. Schneider. 962
cutting-off machine, A new cold. Newton Machine Tool Works' *1713
cutting-off machine, Metal. Nutter Barnes & Co.'s. *565
cutting-off machine, The Cochrane-Bly cold. *1493
cutting-off machines, Cold. Gustav Wagner's. *1012, 1206, *1218
E. G. Herbert's large power hack. James Vose. 1737
frame, engine shaft, line shaft, flywheel and sawmill slides by peening, Straightening a. See "Straightening."
frame, Hack-. S. V. S. *204
Holder for thin work on band; cutting-off gage for circular saw. John M. Richardson. *1249
mill bed, Molding a. R. H. Palmer. *96
engine, Repairing a—Dunbar packing. W. Osborne. *94
Planer vs. buzz. Ferd. Wertheim. 766
C. Neil. *1022
Saws, Grinding hack. A Sufferer. 489, 625
L. O. Danse. 625
H. G. Kellogg. 801
G. Schneider. 962
Paper washers or micrometrically adjustable collars for gang. Mac. *31
C. W. Coburn. *625
Sawing copper—High speed milling machine spindle; lubrication; holding commutators for sawing. A Toolmaker. *1125
copper. W. H. Booth. *1417
for dovetailing. C. R. Harris. *207
rubber rolls. Machinist. *1762
Scale from gas engine cylinder jackets, To remove. 821
Graduates in drawing unfamiliar with use of a. S. P. Y. 1656
Wilbert S. Drew. *1864
graduation lines. W. A. Warman and R. B. Cochrane. *15
M. H. Ball. 194
in form of steps, Machinist's. Albert E. Ayer's. *678
made by a Japanese boy. S. B. McQuade. *193
or fillet gage?—English scales. Cynic. *32
S. B. McQuade. 193
T. H. Foulston. 486
Tape to hold a. Wilfrid J. Thompson. *1407
to the T-square, Attaching the drawing. J. C. Hafner. *1454

PAGE

Scales, Home-made. H. E. B. *1415
Scandanavia, Outlook for American Machinery in. Henry L. Geissel. 1493
"Scant," "Full" and. Gerald E. Flanagan. 880
Scholarship at Ohio State University, Endowment of engineering. 1639
Scholarships at Lehigh University. 358
School, A new metal working—Hebrew Technical Institute. 499
A shop drawing class. Eugene C. Peck. *810
A successful evening, Richmond Technical Association's. H. E. Harris. 937, 1112
and Armour Institute, Co-operation between American Correspondence. 964, 1379
Commencement at Hoe's apprentice. 853
Drill press and clock built at technical. Wilbert S. Drew. *1864
for instruction in heavy fire arms, Proposed army. 135
fraud, Correspondence. 1639
graduates, Good word for correspondence. L. O. Danse. 1831
instruction in drawing, Correspondence. A. B. C. 66
X. 202
S. B. 240
Student. 382
—Machine work of an engineering college. 68
methods, Evening drawing. Roy John Hannon. 1368
of Correspondence, Extracts from drawing instruction pamphlet of American. 1341
of Correspondence, The American. 101
of the University of Wisconsin, Summer. 742
of Trades, The Springfield (Mass.) Evening; shop exercises. E. R. Markham. *1741, 1772
—Questions asked in a shop drawing class. L. O. Danse. 1285
The proposed foundry trade. Thos. D. West. 441, 669, 739, 773
P. McNaughton. 529
Tecumseh Swift. 669
D. C. Gilliland. 669
John E. Sweet. 734
John L. Bacon. 769
J. O. B. 851
trained draftsmen. G. E. Flanagan 1200
Schools—A plea for technical education for the mechanic. Victor C. Alderson. 1173
and company management, German technical high. B. Esmarch. 1378, 1380
Drawings from AMERICAN MACHINIST to be used in Chicago high. 1639
—Education for the machine trades. Samuel M. Vauclain. 269
for apprentices, Trade. E. F. Scott. 993
Relative salaries of graduates of regular colleges and scientific. 598
—Technical education at Finsbury Scientific College, etc. John Perry. 1512
Technical—Need of practical teachers and system. Engineer. 1865
—The AMERICAN MACHINIST and education. Robert H. Thurston. *1569
The New York Trade. 562
—*The Philistine* on education. 521
Wrong impressions about drawing given by mechanical. C. H. Norton. *980
1060
S. P. Y. 1656
Wilbert S. Drew. 1864
Schwab and his private car, Mr. "Pittsburgh." 563
Schwab's breakdown, Mr.—Carrying the details. 1204, 1238
Science, Annual meeting of the Society for the Advancement of. 885, 1494
Scientific methods—The retrospect of a quarter-century of progress. Robert H. Thurston. *1569
Scissors attached to lathe, Truing a bristle roller with. Francis W. Shaw. *488
Scotland, The premium plan in. Barr & Stroud. *381
Scott, Death of Hugh H. 535
Scrap, Dynamiting. Monongahela. 1406
racks, Pattern lumber and. Wm. Newton. *1265
Scraper, Glue. John M. Richardson. *1249
Scraping lathe and planer parts, Winch with rope drive for. H. Goldsmith. *1115
lathe beds. H. Goldsmith. 1398
Scrapping the Bethlehem hammer; The Midvale hammer. 416
Tecumseh Swift. 449
Ferd Wertheim. 529
U. Peters. 670

PAGE

Scratch block, A toolmaker's. Morris W. Leech. *20
block and surface gage, A. Theodore. *489
gage, A handy. John Koehler. *702
Scratching, A kink in "blue-stoning" for. A. H. 476
Screw. See also "Thread," "Threads," "Threading," "Tap," "Taps," "Tapping."
A new set. W. A. Warman. *694
A non-reversible. Howard A. Coombs. *182
—A student's idea of a tapped hole. C. H. Norton. *981, 1060
and driving it for steep helical pitches, Gearing up a lead. H. Du Rose. *799
and other planer drives, The. A Cosmopolitan. 665, 677
Boy's excuse for a broken tool post set; cutting a screw of wrong pitch. W. Osborne. 1118
Cutting a coarse pitch. Joseph V. Woodworth. *2
cutting—A collapsing tap. John Graves. *952
cutting—A handy die stock. W. R. G. *
Cutting a long, slim. J. Green. *1771
cutting, An English tool holder good for. Francis W. Shaw. *1770
cutting, Catching threads in; giving and following orders. W. Osborne. 177, *578
J. T. Giddings. 341
Julius Kreis. 353, 358
John Randol. *439
Theodore. 493
Francis W. Shaw. 636, 1125
James Bell. 637
Frank Greiner. 680
cutting, Catching threads in—Old patented device. Howard A. Coombs. *609
cutting on the planer, Steep pitch. Lathe Hand. *490
cutting, Uneven lock nuts cause trouble in. Francis W. Shaw. *1124
Drill jig with novel clamping. D. E. MacCarthy. *738
for elevating the knee, Universal milling machine with. Brown & Sharpe Mfg. Co.'s. 422
Wm. A. Muir & Co. 767
gages—Adjusting chasers for sizing plugs. Isaac Morgan. *1136
in grindstone, Cutting a steep pitch. Francis W. Shaw. *488
list for lathe assembling gangs. *789
machine, An oil guard for the automatic. S. F. Arthur. *1767
machine attachments for a hand lathe. E. E. Winship. *628
machine drilling fixture, A. H. T. G. *1637
machine for making condenser ferrules, etc., Automatic; Magazine screw machine for electric work, gun shells, etc. Alfred Herbert, Ltd.'s. *1195
Garvin machine Co.'s 2x12-inch. *1855
machine, Refusing permission to inspect. Y. Z. 1269
machine, Taper turning box tool for the. E. D. *1129
machine, Turning balls in the. Theodore. *737
machines and turret machines, Twenty-five years' progress in. Brown & Sharpe Mfg. Co.'s; Jones & Lamson Machine Co.'s; Pratt & Whitney Co.'s. *1616
machines in a picture, Some queer. 69
machines, Tap and die holder for. F. C. Tyler's. *1662
Making a special; chuck and tool for rounding head. H. B. McCabe. *1275
patterns, Making worm or. Old Bob. *31
propellers. See "Propeller," "Propellers."
Removing a broken set. W. Osborne. 1021
slotting machine at the Duesseldorf Exposition. Kalker Werkzeugmaschinen Fabrik's. *1445
thread pitches, Ball caliper for measuring. Otto Eckett Yugen. *1280
thread sizes, Proposed standard for machine. Chas. C. Tyler. 822
thread tool gage, Improved 29-degree. Brown & Sharpe Mfg. Co.'s. *500
threads, An instrument for drawing. Roger Haines. *303
threads, Appointment of a committee on standard. 1795
threads, Finer. Chas T. Porter. 1798
threading dies, Large. S. R. *1793

PAGE

Screw works, Which way the lathe tail-stock. W. Osborne. 1366
John E. Sweet. 1491
L. O. Danse. 1652
Francis W. Shaw. 1771
Screws, Chucking small; locking a cap screw. John Scott. 1344
—English pipe threads. W. H. Booth. 1286
For tightening hand. B. M. *955, 1132
in the French Navy, International system. 1205
Support for cutting long lead. H. Goldsmith. *1115
—Tap drill sizes for V-threads. L. O. Danse. 1107
—Tools for cutting square threads of steep pitch, etc. H. H. 64
W. S. Rowell. *225
W. B. *303
C. W. Higgins. *526
wanted, Case hardened. 101
Sea's, Punch and die for making box protective. Joseph V. Woodworth. *1192
Search mentioned for head of new department, Theodore C. 597
"Seasoning" in straightening. Geo. J. Meyer. *764
Second-hand machinery. 1806
Secret of success, The. 233
Secrets and confidential relations, Trade. 100
Section lining, Device for. Edward A. Osse. *1277
Segments, Gaging the ends of. C. S. Beach. *1760
Milling brass. Electric. *1770
Two fixtures for finishing cast iron. D. E. MacCarthy. *334
Self-hardening steel tools, Set of. Joseph V. Woodworth. *959
Sellers & Co., Shop practice of—Making jigs on the milling machine, etc. H. Goldsmith. *1114
C. A. Hargraves. 1403
Separating machines and their uses, Centrifugal. Bartholomew Viola. 1800
oil from exhaust steam, Discussion on. 1800
Separator, A grease. Duplex. *351
Sermon, A machine shop. Rev. Charles Stelzle. 470
Sermons and a good machine shop story, The minister's. J. C. Green. 198
Set-screw, A new. W. A. Warman. *694
Setting instrument for planing keyways in shafting, testing twist drills, etc., New. Morris Chamberlain's. *998
Sewing machine drawing table, A. D. E. M. *1270
machine history, Facts about. 1363
machine, Machinist in prison invents. 1059
machine shop, Novel construction of a. 1479
Shade lines on drawings. See "Drawing." "Drawings."
Shades for shop windows. T. A. B. 481
Shaft couplings. See also "Coupling," "Couplings."
Fastening a coupling to an engine. F. W. Harris. *1414
in cold weather, Extra power required for a line. Transmission. 445
line shaft, etc., by peening. Straightening an engine. See "Straightening."
straightener, A handy. Geo. J. Meyer. *764
with driving pulley in middle, Size of long line. (4) 215
Shafts, Crank. See also "Crank," "Cranks."
Fixture for milling slots in small. C. H. Rowe. *1412
Hydraulic press for hubs on. Messrs. Young's. *741
in milling keyways, Chuck for holding. C. M. *1271
Setting and alining. A. H. Cleaves. *7
Shafting, A safety collar for. National Tool & Machine Co.'s. *215
in cold weather, Extra power used by. Transmission. 445, *762
J. H. Dunbar. 592
Shape in hardening, Steel changing. See "Steel."
Shaper, A tool holder for internal work on the. B. A. Roberts. *203
Adjustable parallel for. C. B. *1139
and planer, Tools or tool holders for internal work on the. See "Tools."
Cutting an internal gear on the. J. N. Germain. *198
for machining Sellers planer table racks. H. Goldsmith. *1114
Large double-head traverse. Cincinnati Shaper Co.'s. *190

PAGE

Shaper, Rack cutter made from. H. Goldsmith. 1398
Radius planing attachment for the. James F. Willey. *1753
rig for cutting internal ratchet teeth, A. H. E. B. *494
Tool holder for the. X. N. Tric. *1760
Shapers, Twenty-five years' progress in —Bement, Miles & Co.'s; Gould & Eberhardt's; Hendey Machine Co.'s; Pratt & Whitney Co.'s; Wm. Sellers & Co.'s. *1607
Two draw-stroke. Baker Bros.' *785
etc., A new vise for. Hill Tool Co.'s. *1030
Shaping machine by Henry Maudslay and another early shaper. *584
Sharp tools and thin chips. J. C. Green. 495
Sharpe's foreign trade policy, Mr. Brown & Sharpe Mfg. Co. 1427
Sharpening gouges. John M. Richardson. *1249
Shear for cutting off ends of blooms, The flying. V. E. Edwards. 819
Shearing die for cups, caps, etc., Combined drawing and. Charles Fischer's. *390
machine at the Duesseldorf Exposition, Electro-hydraulic beam. Kalker Werkzeugmaschinen Fabrik's. *1446
machine at the Krupp works, Hydraulic sheet. *839
stresses, A diagram for the combination of direct and. E. R. Douglas. *978
with a punch, Circular. W. *1277
Sheave, Molding a chain. Foundry Foreman. *958
Molding a rope. William Newton. *200, 630
"Hobo." 344
Francis W. Shaw. *635, 637
Sheaves and drums for crane hoisting purposes. *1010
Sheet iron, Melting scrap. (1) 69
metals in dies, Cold working. See "Die." "Dies."
Shell button factory in a boat. 667
cores, Making, locating and holding. C. Neil. *1134
Shells. See also "Die," "Dies."
A punching, drawing and forming die for electric light shade holder. W. W. P. *768
A quadruplicate, automatic-slide die for piercing conical. William Doran. *332
Difficulties in machining conical. L. O. Weyer. 18, 632
See also "Steel in hardening, Contraction or expansion of."
from sheet metal, Drawing deep. Joseph V. Woodworth. *1338, 1382
Mattatuck. *1518
Experience. *1686
A. C. R. *1832
Holding babbitt in. E. R. Plaisted. *591
Large drawing dies for circular. Joseph V. Woodworth. *1159
Magazine screw machine arranged for quick-firing gun. Alfred Herbert, Ltd.'s. *1197
may be drawn, Depth to which sheet metal; sizing blanks; formulas. John D. Riggs. 819
Experience. 1056, 1553
Erratum. 1792
H. E. Brown. 1455
Questions about a die for. B. J. Dougherty. 33
Joseph V. Woodworth. 194
Taper gage for accurate work on brass. James A Brown. *632
Tools for trimming electric lamp outside socket shells. Barney. *1122
Shellacking blueprints, Atomizer for. Mac. *878
Shelves, Work benches without. Old Bob. 1268
Shifter, Cone belt. T. A. B. *481
International competition for a belt. 885
Ship. See also "Boat," "Boats."
after John Fritz, Naming a. Chas. T. Porter. 1658 1660
board, Oil fuel on. See "Oil."
Delay of European edition of the AMERICAN MACHINIST by accident to a. 566
stern frame and rudder post at Krupp hall of Duesseldorf Exposition *1450
turrets, Krupp ball bearings for. *1620
Why it takes so long to build a naval. George W. Dickie. 1825
Ships, Charge that Cramp workmen disarranged machinery of naval. 1838
Doerr safety bulkhead door system for. 125
in government yards, Building of naval. 533, 597, 772, 997, 1031
of steel, Now they build—Old forge hammer heads. 165

PAGE

Ships, Twenty-five years' improvements in naval; Shipyards and naval strength. Rear Admiral George W. Melville. *1572
under construction, Air. 1319
Shipbuilders' Book of Formulas, Rules and Tables, The Naval Architects' and. By Clement Macrow. †1663
Shipbuilding and other work, The English consulting engineer in regard to. 564
Shipping, American edition of *The Syren and*. 1838
facilities curtailed. 1692
Shipyard of the Fore River Ship and Engine Co. 818
Shoe industry at Lynn, Mass., Origin of the. 1571
tips, Dies for punching leather. Joseph V. Woodworth. *469
Shop accident emergency outfit, A. 904
Car equipped for traveling machine. 1351
clear, Keeping the. Tecumseh Swift. 1166
construction, Novel. Wheeler & Wilson Co.'s. 1479
devices, Some jobbing—Drilling holes in a helical casting; milling in the drill press; special chuck for brass rings; rounding the edges of brass disks; a handle for a templet; fixture for milling; keyseating in the power press. Joseph V. Woodworth. *758
drawing class, The methods of conducting a. Eugene C. Peck. *810
erecting floor, An engine. Canadian Rand Drill Co.'s. *1817
examples, Various—Good tools, getting ahead, being boss, boys, a pail of water, squirt guns, poor calipers, etc. W. Osborne. 1476
exercises of the Springfield (Mass.) School of Trades. E. R. Markham. *1741, 1772
foreman, By the help of the. Tecumseh Swift. 1721
foreman, The. E. R. Markham. 1084
foremen in conspiracy—A difficult case. See "Foremen."
—Guarding machinery against accidents. *1185
Hinge making in an old. C. H. M. *630
How a night foreman dealt with drunken men in a. W. Osborne. 1859
How to brace up a. Dutch. 1022, 1315, 1520
Tecumseh Swift. 1057
Ex-Employer. 1087
Uneedabrick. 1091
H. E. B. 1091
Bell Crank. 1201, 1720
W. Osborne. 1367
L. O. Danse. 1376, 1716
Francis W. Shaw. 1714
How to show a—Visits by workmen, etc., in England. James Vose. 1090
ignorance, Examples of. S. B. McQuade. 194
Jobbing and manufacturing in the same. Junior Boss. 1458
S. L. Bley. 1686
management—Gang bosses. Wm. Lodge. 642, 645
methods, Some Jobbing: Cutting a coarse pitch screw; making thin threaded brass rings; making large holes with small driller; a stepping jig for drilling a lot of small holes; makeshift device for drilling holes in planer bed; spring winding; making spring collets, etc. Joseph V. Woodworth. *2
methods through English eyes, American work. 235
Narrowmindedness in the—Refusing permission to see screw machine; doubling engine horsepower; starting a wagon. Y. Z. 1269
nomenclature. W. Osborne. 1539
nomenclature in England. Francis W. Shaw. 1862
notes, Boyer—A long spring mandrel; compressed air for jig clamps. L. O. Danse. 1523
notes from the factory of C. H. Besly & Co.—Machine for applying glue to emery paper circles; Gardner double disk grinder finishing edges of a parallel clamp; grinding and polishing band used in finishing shanks of long nut taps; tap threading machine; tap fluting machine; tap swaging machine; multiple spindle drill for bottoms and nipples of grease cups; grease lubrication of loose pulleys; countershaft; rod chuck for turret lathe; tracer card file, etc., for tap orders. *1108

PAGE

Shop obstructionists, Habitual. B. W. T. 192
of Fore River Ship & Engine Co. 818
of Watervliet Arsenal, View in gun. *612, *1043
orders. See "Orders."
practice, etc.—A review and a glance forward—The steam engine; antiquity of new things; heavy pattern lathes; forms of lathe beds; daring to do; proportions of milling machines; cost of grinding piston rods, etc. Prof. Sweet. *1586
practice of Lodge & Shipley Machine Tool Co. and American Tool Works Co. H. Goldsmith. *789
practice of the Cincinnati Milling Machine Co., Some points in—Fast milling of platen slots, etc.; air blast for clearing of chips; right hand spirals on end mill cutters; drills for spindles; true boring on automatic turret lathe; dial indicators for testing; testing squareness and parallelism of platen and spindle; testing alinement of central slot with spindle and table trunnion; adjusting the planer tool to correct the position of the slot; special dead center latne for facing arbor collars; parallel pin mandrel; grinding central boss of cutters; grinding face of arbor nuts; proving truth of collars and nut. *866
practice of Westinghouse Electric & Mfg. Co. H. Goldsmith. *938
practice of William Sellers & Co. H. Goldsmith. *1114
C. A. Hargraves. 1403
practice, Twenty-five years in machine—Subdivision of work; draftsman and blueprint; tool room; stock room; materials; small tools, scales, micrometers; twist drill; tool grinder; improvements of standard tools; milling machine; turret lathe; grinding machine; combination tools for heavy work and assembling; toothed-gear practice; pneumatic tools; electricity; press work; special automatic tools; lubricating and antifriction devices; general shop conditions; conclusion. 1581
problems, Some jobbing. 38
Bell Crank. 210
Prohibiting the draftsmen from entering the. Tecumseh Swift. 444
Fred S. English. 561
proprietor, A liberal—Christmas presents. E. J. B. 193
refuse, Work benches without shelves for. Old Bob. 1268
sermon, A machine. Rev. Charles Stelzle. 470
Starting a job. W. Osborne. *1336
story, A good machine—Length of time to learn a trade. J. C. Green. 198
The clean blacksmith—Does it pay? H. R. Looker. 1339
Blacksmith. 1491
The development of an old-fashioned. B. W. T. *205
The electrical equipment of the Nordberg Mfg. Co.'s. *929
to Serve a Road on Division Equipped with 310 Locomotives, A Typical. By L. R. Pomeroy. †998
to the A. S. M. E., Showing off a. B. W. T. 706
tool arrangement, A "barber." Salesman. 1274
windows, Shades for. T. A. B. 481
with some queer screw machines, Picture of a. 69
work of an engineering college, Machine. 68
Shops, Alleged corruption in British work—Maintenance of industrial efficiency. 1140
and how to get them there, Men in the—Ignorance of mechanical matters; story writing. W. Osborne. 870
and the Duesseldorf exhibition, The Krupp. *836
General scheme of the new Allis-Chalmers Milwaukee. *840
Notes in Baldwin Locomotive, American Turret Lathe, Binsse Machine, Gould & Eberhardt and Pond Machine Tool. H. Goldsmith. *1260
Notes on English—Messrs. Peckett; 20-inch driller of Humpage, Jaques & Pederson, Ltd.; E. G. Herbert's hack saw; Canadian tools; Clark's Engineering & Tool Co.'s heavy hollow spindle lathe; Alfred Herbert, Ltd.'s shop, etc. James Vose. *1737

PAGE

Shops of American Ordnance Co. and Hendey Machine Co., Notes in. See "Mechanic, Notes by a wandering."
of the General Electric Co., A visit to the. Lyman B. Thompson. *1252
of the Pratt & Whitney Co., A Wandering Mechanic in the—turret lathe attachment for turning and facing change gear blanks; fixtures for milling thin steel pieces and bolt heads. H. Goldsmith. *1747
Suggestion as to school. Engineer. 1865
The tool equipment of French locomotive. Z. 770
The value of up-to-date tools for railroad. M. K. Barnum. 729
Shrink gage, A paper. F. W. Unger. *952
Shrinkage in hardening, Threading taps to allow for. Otto Eckelt. *478
of wrought iron. Perseverance. 491
Straightening by. A. Pidgen. 880
Cheroot. 1085
Shrouded gear teeth, The strength of. Wilfred Lewis. *145
Shuttle spring forming machine, A special. Francis W. Shaw. *1375
Siam, Copyright law in. 821
Siberian Railway and the question of wages, Cost of the. 215
Side rods, Machining. Frank Rattek. *948
Sidewalk, The office building and the hot. 1284
Sieve to be shaken by too high speed cam. Peter H. Bullock. *1395
Signs posted in shops. See "Shop, How to brace up a."
Simmons, Death of George W. 1838
Singer, Death of Isaac A. 1431
Siphon, A home made steam. X. Y. Z. *949
Size of drawings. C. E. Coolidige. 874
Machinist. 990, 1234
Sizing plugs, Adjusting chasers for. Isaac Morgan. *1136
Skate, Improving a sand sifter with roller. 1174
Skelly, Death of Thomas. 1870
Sketches, Carbon copies of. D. E. F. 206
Skidmore, Jr., Death of Philo H. 1727
Skin drying of castings. Harris Tabor. *1597
"Skylark," The coachman of the. (Poetry) 1233
Skilled labor, Compensation of. John Richards. 658, 676
Sleeve, Planer tool for cutting a keyway in a long. H. Goldsmith. *1116
Sleeves from neglect of the oil can, Trouble with clutch pulley. S. P. Y. 672
Slide of surface grinder, Adjustment for. A. H. Cleaves. *7
rule, Barth's gear. *1075
rule, Finding centrifugal force by the. E. J. Armstrong. 99
George F. Summers. *302
rule, Five important markings of a draftsman's. Geo. F. Summers. *233
rule. See also "Computer."
valves, Lathe speed. Carl G. Barth's. *1684
Errata. 1774
Valve and its Functions, The. By J. Begtrup. †1559
Slides, A link substitute for. W. A. Warman. *447
E. R. Plaisted. *591
Slim articles, Hardening. See "Hardening long reamers."
Sling for a lathe chuck, A. T. H. Miller. 342
Slip fits, Press and. See "Fits."
To drive drills without. James D. Anderson. 639
Slitting press-board, A punch and die for. Toolmaker. *1719
Slot planing tool, A T-. G. H. K. *483
Slots, A fixture for milling. Joseph V. Woodworth. *758
in machine tools, Bolt. "Tramp." 486
in milling machine platen and in cylinders, Fast milling of; Truing slots on planer, etc. *866
in small shafts, Fixture for milling. C. H. Rowe. *1412
Slotter, A slide valve job on the. Frank Rattek. *1768
Improved. T. C. Dill Machine Co.'s. *434
—Machining side rods. Frank Rattek. *948
Truing a. J. F. Van Horne. *480
Slotting and perforating armature disks, flat and cylindrical sheet metal. Joseph V. Woodworth. *1708
by combination feed, Oblique. Frank Rattek. *489
jig, A valve. Roger Haines. *1273
machine, A draw stroke. Baker Bros.' *554
machine at the Duesseldorf Exposition, Screw. Kalker Werkzeumaschinen Fabrik's. *1445

PAGE

Slotting tool holder, The hang of the. Frank Rattek. *1275
John Bertram. *1761
with milling cutter and leaving ends straight, Invention for. Howard A. Coombs. *182
Smoke abatement in Cleveland; inspection, etc. Prof. C. H. Benjamin. *131, 134
consumer, A practical objection to a successful. 387
in Manchester. 774
Music and. 1595
stack, A brick-lined steel. Selby Smelting & Refining Co.'s. *1510
stack, Repairing a steel. 419
stack, Painting a—Rope block, etc., used. Oil Stone. *956
R. P. King. *1489
The abolition of. Tecumseh Swift. 914
916
W. H. Booth. 1169
T. T. Parker. *1480
The Prevention of. By W. C. Popplewell. †453
Smokeless combustion. Gus C. Henning. 1798
Snakes, Natural gas and. W. Osborne. 160
Snap gage, A permanent. W. R. G. *34
gages, Drop forgings for. J. H. Williams & Co.'s. 774
Snead, Death of William R. 502
Soap-box, Combination dies for an aluminum. H. Robinson. *1542
Soap mines, British American. 521
The ways of salesmen of soft. W. Osborne. 988
Cherry Red. 1234
Social Economy, The American Institute of. 1383
Society, The Mansfield Technical. 1870
Socket and the drift, The drill, the. Drill Drift. *14
Improved drill. Irving Barker's. *742
Soda for marking blueprints, Using. F. W. Harris. 164
E. R. Plaisted. 380
Gerald E. Flanagan. 853
Solar motor, A. 1516
Solder for aluminum, A. 1285
Soldering, Hard. J. R. Price. 203
iron, An electric. W. *963
metals, For cleaning and. 1684
troubles, Hard. J. R. Price. 767
Solenoids, Construction of; crane design. A. D. Williams. *1676
Soot in Manchester. 774
Sore finger end, Bandaging a. F. P. Avery. *274
Southern Railway and its machinists, Settlement between the. 565
Review of Commerce. See "Swindle."
Spacing bolt circles, An instrument for. *1116
center punches. A. R. Bailey. *29
E. R. Plaisted. *32
Spain—Trade matters in Asturias, etc.; Prizes for suggested industries. 1853
Trade matters in. H. L. Geissel. 903, 1019, 1059
Spars, Turning heavy. 774
Spark arrester, Molding a locomotive. Wm. Newton. *630
Spear, Death of James. 216
Specialization in the machine tool industry. Census Bulletin. 1643
in the navy, Increased. Rear Admiral George W. Melville. *1572
—"Popcorn and popcorn only." A Cosmopolitan. 551
Specifications for steel forgings, castings and boiler plates. William R. Webster. 814
for Steel, Review and Text of the American Standard. By A. L. Colby. †452
Spectacles and the care of the eyes. C. Ridderhoff. *472, 498
I. W. Payler. *625
Speed and time of lathe work, Diagrams for estimating. Arnold Thompson. *985
changing device, A. *565
changing device, A. H. P. White's. *1461
changing pulley, Improved. Speed Changing Pulley Co.'s. *124
claimed to be broken, World's record of railway. 595
countershaft, A new variable. Lodge & Shipley Machine Tool Co.'s. *414, *1188
device, New design of variable. Reeves Pulley Co.'s. *1461
device, Variable. George Richards & Co.'s. *788
electric motor with two armature windings, Variable. Commercial Electric Co.'s. *587
friction clutch, A variable. William A. Wood's. *1683
Incompetence in reckoning. Wm. H. Brooks. 33
mechanism, Moore & White's variable. Walter Ferris. *944

PAGE

Speed of a planer, A rotating dash pot used in an attempt to increase the return. C. H. M. *960
of a yacht, The. 1316
slide rules, Lathe. See "Slide."
transmissions, Reeves Pulley Co. building many large variable. 710
with electricity on German railroads, High. 731
Speeds and feeds for different materials and operations. Stanley H. Moore. *1857
Milling machine feeds and. P. V. Vernon. 1550
of Bickford drills. See "Drilling."
Sphere, To find volume of a pipe up to intersection with a. Anonymous. *1456
Edgar H. Berry. *1679
Spherical boring and other tools. J. Menegus. *1139
boring rig, A. P. E. Woodward. *27
Spindle, A chuck or guide for the back end of the hollow. W. A. Bright. *1281
An adjustable stop for tailstock. Robt. H. Laghlin. *29
drills. H. Goldsmith. *789
for sawing copper, High speed milling machine. A Toolmaker. *1125
of surface grinder, Squaring a. A. H. Cleaves. *7
Test of driving in of Hendey-Norton lathe. 413
with square-ended threads, A lathe. H. O. Bow. *1268
Spindles, Punch for centering small. B. O. Butler. *1757
used by the Cincinnati Milling Machine Co., Drills for. *867
Spinning lathe chucking device, A. Andrew C. Witzel's. *1227
or knurling tool, A resilient. *453
Spiral gears. See "Gear," "Gears," "Gearing."
springs, Experiments on. Chas. H. Benjamin and Roy A. French. 154
Spirals for end mill cutters, Right hand. *866
Splined rod for milling attachment. H. Goldsmith. *790
Splining a long sleeve, Tool for. H. Goldsmith. *1116
tool for rifling work. E. R. Markham. *492
tools. See also "Tools or tool holders for internal work."
Splitting up a foreman. See "Foreman."
Spoiled work, Examples of. L. O. Danse. 914
work in a jobbing shop? Who shall pay for. 38
Bell Crank. 210
Spoons and forks, Making. F. Candor. *936
Spreaders—"We haven't got them castings." Mr. Bucks. 1207
Spring, A Geneva stop for use in winding or unwinding a coiled. W. *910
A trick in making a peculiar. J. E. P. *347
and prong nut, Rig for drilling a. L. E. W. *882
Coiling a. Geo. J. Meyer. 1120
coiling machine. Coulter & McKensie Machine Co.'s. *795
forming machine, A special. Francis W. Shaw. *1375
steel trust sued on old contract. 1431
Winding a square. Ver. I. Nier. *486
winding fixture; spring collets. Joseph V. Woodworth. *3
wire edgewise, Winding flat. W. A. Warman. *348
Springs. A. A. Cary. 266
A diagram for helical. Geo. F. Summers. *1822
Coiling. M. H. Westbrook. *1770
Diagrams and formulas for semi-elliptic plate. Lawford H. Fry. *1680
Errata. 1790
Experiments on spiral. Chas. H. Benjamin and Roy A. French. 154
Fixture for cutting off. A. H. *733
made of mica. 387
Making small—Hardening, etc. J. R. Price. 1418
Springfield (Mass.) Evening School of Trades, The; shop exercises. *1741, 1772
Square and depth gage, A combination. M. E. Duggan. *1406
Case for a steel. Foreman. *764
drive, A. H. E. B. *1417
T. See "T-square."
Squares of fractions and mixed numbers. Gerald E. Flanagan. 1343
Squaring a spindle of surface grinder. A. H. Cleaves. *7
Stairway for the New York underground railway, Moving. 1427
Stamping on steel, Templets for letter. A. A. Brandt. *1271
H. F. 1403
T. H. Miller. 1403

PAGE

Stand for drills and taps. S. V. S. *204
Standard classification of patterns, A. 67
for machine screw thread sizes, Proposed. Chas. C. Tyler. 822
for taper taps for boiler fittings, A proposed. H. E. B. *763
pipe unions, Supplementary report of committee on. 814
plugs, Special adjustable and renewable. M. W. Leech. *349
system of taper bolts, A. H. E. B. *728
roller chain, The proposed. J. O. Nixon. *13
C. E. Whitney. 133
screw threads, Appointment of a committee on. 1795
Screw threads finer than. Charles T. Porter. 1798
system screws in the French Navy, International. 1205
tapers for the tangs of wood workers' tools, For. Woodworker. 957
John E. Sweet. 1128
trade catalogs. 1237
yard, The English and American. 1558, 1692
Standards, Appropriation for buildings for the National Bureau of. 999
for different kinds of fits. Newall Engineering Co.'s. See "Gages."
Holder for gage. A. Bollinckx. *341
of work, Progressive. Tecumseh Swift. 961
The National Bureau of. 212
Standardization in Great Britain. 1082, 1853
of parts in naval construction, Need of. 1828
Standardize methods of engine tests, Report of committee appointed to codify and. 813, 1796
Stanley Electric Co. employees form club. 1383
Star admiral, A. 499
Station of the Boston Edison Co., Atlantic Ave. I. E. Moultrop and R. E. Curtis. 815
Statistics on the American iron and steel industries and an English analysis, Census. 1543, 1599
of electric power in the United States and elsewhere. Sidney Graves Coon. *522
of machines described in AMERICAN MACHINIST. 1624
of manufactures by machinery; steam power employed in U. S., etc. Carroll D. Wright. *1576
of manufactures, Census. 214
of mineral output of the United States in 1900. 23"
of production, Prosperity and. 1575
of the Massachusetts machinery industry. 37
Statistical Abstract of the U. S. †419
Staybolt cutter, Portable hydraulic. Otto Philipp's. *1642
Bell Crank. 1790
Steady rest, A self-centering. E. C. Thulin. *520
rest, Adjustable. Charles H. Clare's. *390
rest for grinding, Novel. W. E. Callaghan. *950
Steam boiler accessories by the American School of Correspondence, Instruction on. 101
boiler fittings, A proposed standard for taper taps for. H. E. B. *763
chests, Attachment for planing laundry mangle circular. Cincinnati Planer Co.'s. *721
condensers, Surface allowed in. 762
Discussion on separating oil from exhaust. 1800
Ejectors worked by water. Fred. H. Colvin. 1343
engineering progress in twenty-five years. Fred R. Low. *1590
Engineers, Engineering Practice and Theory for. By W. H. Wakeman. †534
for a soap advertisement, Using exhaust. 1222
Heating and Ventilation. By W. S. Monroe. †1031
heating plant in Germany, Long distance. 707
joint, A large expansion. Engineer. *1203
machine for washing overalls. F. W. Harris. *1129
main, A swiveling joint for a 16-inch high pressure. R. E. Curtis. 815
making, On the science of. John C. Parker. *59
pressure computer—The meanometer. Barrow & Harding's. 1805
siphon, A home-made. X. Y. Z. *949
that would not drive. I. W. P. 1171
—The tea kettle dream. 416
to Water Through a Partition, The Transfer of Heat from. †440

PAGE

Steamfitters' case again, The—The right to strike. 533
Steel, Annealing, hardening, case-hardening, tempering. See "Annealing," "Hardening," "Temper," "Tempering."
A new compound for welding. Charles Pangborn's. 911
A new high speed. Jonas & Colver, Ltd.'s. 666
—A tempering or cooling tank. D. E. M. *1136
alloy, An alleged new nickel. 1075
and iron bars in stockroom, Painting ends of. H. Goldsmith. 1261
and steel emery, Crushed. 1526
and Wire Co.'s hospitals for employees, American. 1206
as affected by heat, The structure of. Robert F. Massa. 733
Wm. Metcalf. 734
Bamboo. 444
casting statistics in Germany. 1351
construction, Henry Bridges Molesworth on American workshop methods in. 1207
Corporation, United States. See "United States."
Cracks in; reheating tank for hardened tool steel. E. R. Markham. *1077
—Cutlery by a new process. Joseph Misko's. 1063
Deering Harvester Co. may make. 645
Effects of concussion on. 403
for dies and punches? What kind of. W. A. Warman. 197
forgings, castings and boiler plates, Specifications for. William R. Webster. 814
Getting fair play for modern. H. F. J. Porter. 865
How to know. P. Q. R. 349
Imitating gilding on. 589
in hardening, Contraction or expansion of. Perseverance. 209, 491
W. H. Castle. 1131
Errata. 1281
industries, Census statistics of progress in the iron and. 1543, 1599
lathe tools, Set of self-hardening. Joseph V. Woodworth. *959
milling cutter for slabbing connecting-rod links, Self-hardening. *1712
Peculiar treatment of; an anvil; burning in making punches; a Yankee's safes. L. O. Danse. 1419
Prof. Arnold to determine what is. 1427
Review and Text of the American Standard Specifications for. By A. L. Colby. †452
swindle, The alleged French. Geo. Hamilton. 1029
Fenwick Freres & Co. 1060, 1061
Templets for letter stamping on. See "Stamping."
The imperative conditions for forging. H. F. J. Porter. 942
The new—From the note book of a Cosmopolitan. 665
The Schoeller-Express tool. 774
The Treatment of. Crucible Steel Co. of America. †1319, 1350
To identify. E. A. R. 990
tools, Removing rust from. S. and S. 959
trade, International. F. C. C. 1790
trust situation—Allis-Chalmers Co., etc. 167
trust sued on old contract, Spring. 1431
trust's prices abroad, The. 440
under different degrees of heat, The action of iron and. J. J. Wilmore. *1849
Water annealing of—Heating steel hot. W. Osborne. 261
works, Identifying a dead workman at Homestead. 563
works, Japanese. 1853
works methods through English eyes, American. 235
workers, Don'ts for. Horace Allen. 103
Steels, New. William H. Booth. *1579
Steinlen and his methods. 1674
Step chucks, Cast iron. Wheeler. *1409
Stepped cones? Why not drive power presses with. Wm. H. Booth. *705
stocking gear cutter. See "Cutter."
Stevens Institute, Presentation of the Carnegie Engineering Laboratory at. 246
W. D. Forbes. 279
"Sticks," Casting railroad. C. Vickers. 1746
Stilwell, Death of Edwin R. 1527
Stock, A handy die. W. R. G. *493
Card index for. *1824
card. Wilfred Bancroft. *1052
Improved die. Curtis & Curtis Co.'s. 998
Pipe. Wm. W. Vosper's. *1030
purchased for a specific use. Recording prices of. Kenneth Falconer. *1648

PAGE

Stock room systems of Baldwin Locomotive Works and Pond Machine Tool Co. H. Goldsmith. 1260
room, Twenty-five years' progress of the. 1582
to employees, Gift of. Pittsburg. 305
Stocks of small machine parts, Cataloging. L. P. Alford. *1364
of tools, Private. X. 34
I. W. Payler. 339
Stockholders, Workmen of insolvent company entitled to wages although. 886
Stocking gear cutter, A stepped. See "Cutter."
on the same foot first, Habit of putting the. 1382
Stokers for locomotives, Mechanical. Fred H. Colvin. 816
Stone columns, Turning—Carrying the weight in the lathe. Corneil Ridderhof. *14
Cutting a steep pitch screw in. Francis W. Shaw. *488
Death of Col. William. 391
Stop for tailstock spindle, An adjustable. Robt. H. Laghlin. *29
for use in winding or unwinding a coiled spring, A Geneva. W. *910
or gage for lathe carriage, Adjustable multiple. Edmund J. Bowers'. *597
pins in vise jaw, Locating. W. E. Callaghan. *950
used with flat drill as a turning tool, Multiple. F. W. Shaw. *793
Stops for crane runways, Rail clips and. F. D. Buffum. *241
E. R. Plaisted. *591
Stopping off and saving pattern work. John M. Richardson. 613
Albert Clegg. *1264
off from the middle of a pattern. Francis W. Shaw. *1549
Storage plant of the Lowell Gas Light Co., Steel and concrete coal. Franklin M. Bowman. 819
Stores, Recording prices of special. Kenneth Falconer. *1648
Stories about shop life wanted. W. Osborne. 870
Storing patterns by their sizes and shapes. G. E. Flanagan. 1787
Straight-edge for the drawing board again, The. Apprentice. *1519
Straight-edges, Truing. P. C. Ry. *345
Straight shank cutters in a collet, Holding. Theodore. *30
Straightening and bending; peening; a handy shaft straightener; stretching cast iron steam pipe, etc. Geo. J. Meyer. *764
by peening. W. Osborne. 554, 900
Tecumseh Swift. *590, 732
J. A. Hutchinson. 702
G. Schneider. 962
E. S. Newton. 1124
L. J. E. 1486
by shrinkage. A. Pidgen. 880
Cheroot. 1085
rails on the elevated railroad. 1236, 1317
Straps, A piercing and spreading die for box. See "Die."
Strength of beams, Experiments on the. Albert E. Guy. *54, *85, *116, *147
of egg shells, The. Albert E. Guy. *1222, 1237
Tecumseh Swift. 1313
of materials—A diagram for the combination of direct and shearing stresses. E. R. Douglas. *978
of shrouded gear teeth, The. Wilfred Lewis. *145
Stresses, A diagram for the combination of direct and shearing. E. R. Douglas. *978
Strike because increased salary for manager was refused. 917
because of fighting. 501
—Fresh outbreak of difficulty at Allis-Chalmers works. 135
of General Electric Company employees. 598
statistics, German. 1153
upheld by New York Court of Appeals, The right to. 533
Strikes—Conciliation and arbitration in the coal mining industry. 35
arbitration, National Civic Federation. 69, 100, 305, 451, 695, 1834
demands for nine-hour day, etc., Machinists'. 135, 423, 565, 598, 646, 674, 677, 707, 740, 773, 821, 884, 885, 917, 965, 966, 997, 998, 999, 1030
String jigs. C. Patterson. *14
Strips unnecessary, "Winding." Old Bob. 954
W. E. D. 1751
Stripper for punching thin disks, A. H. R. Ash. *203

PAGE

Stripper used with die for making sheet metal hinges, Automatic. Joseph V. Woodworth. *941
Stud driver, A releasing. Isaac Morgan. *1282
Studs, Tool for setting or Extracting. *1740
Student draftsmen, Ignorance of some. See "Drawing," "School," "Schools," etc.
Students, A drill press and a clock built by. Wilbert S. Drew. *1864
Stuffing box followers, Boring. Tecumseh Swift. 961
Sub-press, Fine power-feed punching without. Cutter Maker. *201
Subtracting fractions. E. S. Timator. 1555
Pinkney. 1866
Success, A formula for. 698
The secret of. 233
Suggestion plan, A trial of the. R. H. Jackson. 1691
Sun dial 200 years old, A. *619
Supervision of corporations, Proposed government. 1348
Support for cutting long lead screws; adjustable rod support. H. Goldsmith. *1115
for planer, surface grinder or miller. Carroll Ashley. †1766
Supports for motors on tools at the Nordberg Mfg. Co.'s plant, Swiveled. *933
for tool work. F. *1407
Surface, finish directions on drawings. Sanford N. Moss. *433
Fred. S. English. 560
C. W. Prentiss. *1056
gage, A scratch block and. Theodore. *489
grinding attachment. G. Schneider. *1122
grinding attachment to a universal grinder. Frederick Hart's. *1041
indicator, A micrometer. M. W. Leech. *476
Surfacing machine, Tee. Edward P. Walter's. *577
Surveying instrument in machine shop practice, The use of a. Charles C. Tyler. 1798
Suspended machine tools. Tecumseh Swift. 1127
Swaging machine, Tap. C. H. Besly & Co.'s. *1110
Swash turning. Curious. *1168
Gestric Land. *1343
Sweden, Outlook for American machinery in. Henry L. Geissel. 1493
Sweet and "his boys," Prof. A Cosmopolitan. 551
proverb, Prof. 1351
Swindle—Southern Review of Commerce. 36
"Tramp." 133
L. T. Wilmarth. 245
D. J. C. Arnold. 278
The alleged French steel. See "Steel."
The foreman's caliper. W. E. W. 494
The lard oil. 39, 165, 278, 1206
Switchboard of blast furnace at Audun-le-Tiche, Lorraine, Electric. Frank C. Perkins. *545
Switzerland, Proposed increase of import duties in. 562
Technical education in. Victor C. Alderson. 1186
Swivel box, Repairing a planer head. H. E. B. *1485
Syren and Shipping, American edition of *The*. 1838
System and order in the pattern shop, Economy. J. L. Gard. 808
Foreman Pattern Maker. 1129
Wm. Newton. *1265
See also "Shop, How to brace up a."
Too much. W. Osborne. 726
Systems and opinions—Taylor system, written orders, etc. L. O. Danse. 914

T

T-slot planing tool, A. G. H. K. *483
T-square, A magnetic drawing board and. W. T. Ellison & Co., Ltd.'s. 1805
Another substitute for a. Apprentice. 1519
Attaching the drawing scale to the. J. C. Hafner. *1454
Attachment to hold the. Edward W. Monahan. *1866
Table, A home-made upright drawing. W. A. Sylvester. *446
A sewing machine drawing. D. E. M. *1270
An inexpensive drawing. J. O. Neikirk. *878
and a drawing board, Another drawing. A. P. *446
for finding the thickness of boiler plates. Geo. F. Summers. *92
for fractional indexing. C. E. De Puy. *1506
for the milling machine, Special. H. T. G. *1056

PAGE

Table for use with flat boards. Gerald E. Flanagan. *880
of actual variation in running and keying fits. Joseph Adamson & Co. *448
of dimensions of eye bolts. Steelton. *1342
Erratum. 1382
of gas pipe, A drawing. W. H. S. *163
of gage limits and allowances for fits. Newall Engineering Co.'s *180
See also "Gages, New types."
of squares of fractions. Gerald E. Flanagan. 1343
of strength and proportions of keys. Frank B. Kleinhans. *1451
of strength of wire rope for cranes. 1011
with drawers, Drawing. G. J. *1458
Tables of feeds and speeds. Stanley H. Moore. *1857
of the Measures of Length, Logarithmic. By T. W. Marshall. †775
Tabulating machine applied to cost accounting, The electrical. *1073
Tag for indicating engaged material, under premium plan at works of Bickford Drill & Tool Co. *1190
for lathes in course of erection. *789
Talk won, Ready—Finding the elevation of a pump above its supply. W. Osborne. 5
C. F. Schaeffer. *197
Tallow as an engine and pump lubricant. W. Osborne. 1398
for cutting tools. George Nelson. 1271
Tangs of woodworkers' tools, For standard tapers for the. Woodworker. 957
John E. Sweet. 1128
Tangiers, Gibraltar and Spain, Trade matters in. Henry L. Geissel. 903
Tangye, Death of Joseph. 884
Tank, A tempering or cooling. D. E. M. *1136
Casting a round. R. H. Palmer. *1228
cover, Molding a. Geo. Buchanan. *1404
for hardened tool steel, A reheating. E. R. Markham. *1077
half around, Turning a heavy. Sailer. *915
Steel hardening. 1801
Tanks, Flanging in making large. L. O. Danse. 1427
for hardening and tempering steel. William R. Bennett's. *103
Tannery engine, Putting a new cylinder on the. W. Osborne. 795
jobs—Burning tan bark; repairing a shaft coupling. W. Osborne. 438
E. J. S. 704
Tap. See also "Taps," "Tapping," "Screw," "Thread," etc.
A collapsing. John Graves. *952
A continuous working nut. Howard A. Coombs. *182
and die holder for screw machines. F. C. Tyler's. *1662
drill sizes for V-threads. L. O. Danse. 1107
Expanding. M. W. Leech. *205
threads, Grinding. L. O. W. 18, 632
wrench. Robertson Mfg. Co.'s. *742
wrench. M. W. Leech. *205
Taps for boiler fittings, A proposed standard for taper. H. E. B. *763
Gardner grinding and polishing band used in finishing shanks of long nut; tap threading machine; tap fluting machine; tap swaging machine; tracer card file, etc., for keeping track of tap orders at C. H. Besly & Co.'s shops. *1109
Grinding expansion. S. B. M. *1282
milling cutters, etc., Combined oil and water hardening of. John L. Bacon. *325
Har. D. Ning. *631
Stand for drills and. S. V. S. *204
to allow for shrinkage in hardening, Threading. Otto Eckelt. *478
Tape to hold a scale. Wilfrid J. Thompson. *1407
Taper bolts, A standard system of. H. E. B. *728
Boring cylinders. W. Osborne. 900
boring lathe, Trouble with a. Z. Y. X. 34
core boxes, Planing. Lucien I. Yeomans. *1412
gages and calipers. See "Gages."
holes, Tool for boring. H. Goldsmith. *1261
tubes with feed motion for the blanks, Fixture for forming. Moses G. Wilder. *90
turning, A job of. E. H. Wright. *477
turning box tool. E. D. *1129
Tapers for the tangs of woodworkers' tools, For standard. Woodworker. 957
John E. Sweet. 1128
Tapper, Electrically driven upright drill and. Gould & Eberhardt's. *422
Tapping a nut on the lathe, Too much power for. Mc. 339

PAGE

Tapping attachment, A drill press with improved. Cincinnati Machine Tool Co.'s. *1283
attachment for an upright drill, A. Fred W. Unger. *208
attachment for speed lathe, Improving a. A. M. Gordon. 209
ball handles, Jig for drilling and. L. E. W. *20
B. M. *625
copper wire. I. W. Payler. 339
machine, Boring and. Baker Bros.' *658
Tariff. See also "Reciprocity."
About the German. F. C. C. 1191
and trusts in Australia. 966
for South Africa, Advocated. 964
on machinery, German. 1557
Proposed increase of the Swiss. 562
Taxation of corporations. 498
Taxing patents. 1332
Frank Rattek. 1519
H. J. Eberhardt. 1687
Taylor's system, Mr. See "Bonus," also "Foreman, splitting up a."
Tea kettle dream, The. 416
Technical education. John Perry. 1512
education, The economic value of. Victor C. Alderson. 1186
schools. Engineer. 1865
training, The need of practical and. G. E. Flanagan. 1200
Technolexicon, The. 1492
Tee surfacing machine. Edward P. Walter's. *577
Teeth, Counterbores with inserted. S. B. Gear. See "Gear," "Gears," "Gearing." *199
Telegraphy in America, Backwardness of. 853
Wireless—How the new things help the old. Prof. Pupin. 1162
Telephone decision case, A. 101
Lard oil by. 165
receiver diaphragm, Amplitude of vibration of. 667
Telescopic screw for elevating the knee, Universal milling machine with. Brown & Sharpe Mfg. Co.'s. 422
Wm. A. Muir & Co. 767
Temper, Drawing the: a scheme for tempering. E. R. Markham. 1163
A. M. Gordon. *1455
Temperature in air compressor cylinder, Effect of varying initial. (2) 69
of exhaust gases, A method of determining the. R. H. Fernald. 815
on horse-power used by a line shaft, Effect of low. See "Power needed".
regulating machine, A. Prof. Willis L. Moore's. 877
Shop. W. Osborne. 1193
Temperatures in a gasoline engine cylinder, The determination of the. E. C. Oliver. *982
Temper, Drawing the; a scheme for tempering. E. R. Markham. 1163
A. M. Gordon. *1455
Tempering. See also "Hardening."
a chisel. Easy. 1377
Curious color experiment in. Alois Platt. *1830
Color in. L. O. Danse. 1263
cutlery steel, Processes for hardening metals and. Mary J. R. Greenman's. 1525
Hardening without. Har. D. Ning. *631
of taps, milling cutters, etc., Combined oil and water hardening and. John L. Bacon. *325
Har. D. Ning. *631
small springs. J. R. Price. 1418
steel, Discussion on annealing and. 1801
steel, Tanks for hardening and. William R. Bennett's. *103
tank, A. D. E. M. *1136
with automatic alarm, Device for. *528
wood planer knives. 329
Templet for punching leather shoe tips. Joseph V. Woodworth. *470
Handle for a. Joseph V. Woodworth. *758
Templets for lathe beds. H. L. Cameron. *1767
for letter stamping on steel. A. A. Brandt. *1271
H. F. 1403
T. H. Miller. 1403
Temptation, A draftsman's. Machinist. 1722
Teneriffe, Eight-hour day decree in. 999
Test, A useful automobile. 1030
bar for keyways, A. I. W. Payler. *959
indicator, A. W. H. Lehman. *1123
indicator, A new. H. A. Lowe's. *1745
indicator, Attachment for a. M. W. Leech. *197
indicator attachment for truing holes. J. F. B. *29
of a 300 horse-power De Laval steam turbine. 1381
of an Otto gasoline engine. E. C. Oliver. *897
of driving fit of Hendey-Norton lathe spindle. 413

PAGE

Test, Working details of a gas engine. R. H. Fernald. 816
Tests. See also "Experiments."
—A roller extensometer. Gus C. Henning. 816
An automatic recording machine for. E. C. Oliver. *289
at Finsbury Technical College, Engineering. John Perry. 1512
Calorimeter for respiration. Frederick Hart's. *1297
Report of committee appointed to codify and standardize methods of engine. 813, 1796
German lathe tool. R. Grimshaw. 549
of ball thrust bearings. Thomas Gray. 1053
of economy due to reheating compressed air. W. G. Edmondson and E. L. Walker. *1080
of fast drilling on Bickford drills. See "Drilling."
of iron and steel under different degrees of heat, Twisting and bending. J. J. Wilmore. *1849
of oil fuel. 525
of power in drilling cast iron, Electrical. See "Drilling."
of roller bearings. See "Bearings."
of steam pipe coverings. Geo. H. Barrus. 814
of strength of egg shells. Albert E. Guy. *1222, 1237
Tecumseh Swift. 1313
—Specifications for steel forgings, castings and boiler plates. William R. Webster. 814
The Gathmann gun. See "Gun."
—The military experimental work of a government. Grahame H. Powell. 185
Testing bevel gears, Fixture for. H. Goldsmith. *1261
by Cincinnati Milling Machine Co. —Dial indicators; squareness and parallelism of platen and spindle; alinement of central slot with spindle and table trunnion; proving truth of arbor collars and nut. *867
department of the General Electric Co. *1255
machine and some of its results, A new oil. Albert Kingsbury. 1800
machine, Experience with a simple babbitt. E. S. Farwell. *1054
materials secedes, The American section of the International Association for. 917
metals, Charpy's method of. 121
straight-edges. P. C. Ry. *345
straightness of a bar. W. E. Hunter. *638
the eyes. C. Ridderhoff. *472, 498
I. W. Payler. *625
twist drills when grinding, Planing keyways in shafting, etc., New setting instrument for. Morris Chamberlain's. *998
Textile fabrics made of wood pulp. 525
machinery works of Platt Bros. & Co. 1462
World Official Directory of the Textile Industries. †1062
Theory and American practice, German. 435
Thickness of boiler plates, Diagram for the. James A. Brown. *300
of boiler plates, Table for finding the. Geo. F. Summers. *92
Thomson's discoveries in fluids, James. John Perry. 1512
Thread. See also "Screw," "Screws," "Tap," "Taps," "Tapping."
A dove-tailed. Charles Fischer's. *41
Arrangement for cutting an odd. J. E. P. *479
cutting die stock, Improved. Curtis & Curtis Co.'s. 998
cutting fixture for the lathe, A. M. W. Leech. *803
cutting machine, Duplex. Webster & Perks Tool Co.'s. *268
cutting, Makeshift for multiple; to keep chips from crowding. Frank Greiner. 1280
cutting tool, A. P. A. G. *948
die holder, A. Adam Herkner. *342
die holder, A. H. T. C. *912
gage, A new. A. B. Christman's. *216
milling machine and special cutter grinder. Pratt & Whitney Co.'s. *1629
on a half nut, Recutting a. P. A. G. *483
pitches, Ball caliper for measuring. Otto Eckett Yugen. *1280
tool and die holder. A. H. Cleaves. *482
tool cutters, Holder for grinding. H. E. B. *805
tool gage, Improved 29-degree screw. Brown & Sharpe Mfg. Co.'s. *500

PAGE

Thread tool for cut, Elevating the. Cornell Ridderhof. 804
Threads, An instrument for drawing screw. Roger Haines. *303
and section lining, Device for drawing screw. Edward A. Osse. *1277
Catching. See Screw."
English and American iron for rolling. L. O. Danse. 1523
English pipe. W. H. Booth. 1286
Grinding tap. L. O. W. 18, 632
in a boring mill, Cutting. W. *957
in gun breach, Lathe attachment for milling. H. Goldsmith. *1397
Lathe injured in chasing short. Faults. 1758
—Marking details "to fit"; fine threads for large bolts. Gerald E. Flanagan. 1266
on a lathe spindle, Square-ended. H. O. Bow. *1268
Some notes on cutting pipe; die for large pipe. J. H. Dunbar. *1423
Tap drill sizes for V. L. O. Danse. 1107
—The chaser for cutting worms. T. A. B. *956
Threaded brass rings, Making thin. Joseph V. Woodworth. *2
Threading machine, Electrically driven pipe. D. Saunders' Sons'. *235
machine, Pipe coil. Reliance Machine & Tool Co.'s. 103
machine, Tap. C. H. Besly & Co.'s. *1110
stock, Pipe. Wm. W. Vosper's. *1030
taps to allow for shrinkage in hardening. Otto Eckelt. *478
Three cornered job, A—Centering an arbor. "Dibs. 353
John Graves. 417
Francis W. Shaw. 1125
Thresher engine, Position of. (11) 1062
Threshing machines, Explosions of. 1349
Ticket, The red—Reading the AMERICAN MACHINIST. 1153
Tickets, Time. See also "Time."
etc., under premium plan at works of Bickford Drill & Tool Co. *1189
etc., used under premium plan at Blank Blank Engineering Works, Job and daily time. *908, *1076
Clinton Alvord. *1165
Tightening hand screws, For. R. M. *955, 1132
too much. W. Osborne. 900
Time and job tickets, etc., used under premium plan at Blank Blank Engineering Works, Job and daily. *908, *1076
Clinton Alvord. *1165
card board, A neat. Harry Ash. *1423
check systems, Some English. 667
keeping by clocks, Accurate. 402
Pay for wasted. John Scott. 1344
premiums in a university drawing course. *1694
required for lathe work, etc., Diagram for estimating. Arnold Thompson. *985
ticket, A. Wilfred Bancroft. *1049
ticket, A shop. E. H. Kreider. *958
tickets, etc., under premium plan at works of Bickford Drill & Tool Co. *1189
to learn a trade—A good machine shop story. J. C. Green. 198
wasting operations. W. A. Warman. 191
Tin plate labor matters. 391
plate works, 1774. *407
Tinned cross-heads for compound locomotives, Tool for planing. J. F. W. *22
Tip, Fastening a billiard cue. Ver. I. Nier. *339
Toggle casting, A reversible milling fixture for a. D. E. MacCarthy. *1251
Tool. See also "Machine Tool," "Machine Tools."
A graduating. C. N. Hargraves. *849
A hand finishing lathe. Adam Herkner. *1688
A lathe attachment for side adjustment of the cutting. H. T. Shearer's. *791
A resilient spinning or knurling. *453
—A simple lathe attachment for relieving the teeth of milling cutters. Frank W. Parker's. *422
A T-slot planing. G. H. K. *483
A thread. A. H. Cleaves. *482
A thread cutting. P. A. G. *948
An expanding planer. C. W. T. *801
An improved expanding planer. John Scott. *196
arrangement, A "barber shop." Salesman. 1274
arrangement, An early double planer. H. O. Coombs. *11
block for the turret lathe, A multiple. Roger Haines. *951
Builders' Association. See "Machine Tool."

PAGE

Tool chest, with combination drawer pulls, A patternmaker's. Tool Chest. *1270
chests, Dress suit cases and patternmakers'. See "Chests."
—Cooling with an air blast; use of oils in cutting. 443
W. G. T. 1342
A. L. De Leeuw. *1456
cutters, Holder for grinding thread. H. E. B. *805
for boring taper holes. H. Goldsmith. *1261
for cut, Elevating the thread. Cornell Ridderhof. 804
for cutting a keyway in a long sleeve, Planer. H. Goldsmith. *1116
for cutting oil grooves in long boxes. Joe Spahn, Jr. *1418
for cutting out large fiber washers for embossing rolls, A special. Joseph V. Woodworth. *1720
for cutting spiral gears in the lathe, Finding the width of a. M. H. Westbrook. *668
for cutting worms, The chaser. T. A. B. *956
for finding centers of fillets and corners, A draftsman's. Spartan. *850
for knurling laps to enlarge them. W. E. Callaghan. *1132
for patternmakers', A corner rounding. C. W. Putnam. *803
for planing lathe V's. *1767
for planing tinned cross-heads. J. F. W. *22
for roughing out, Box; pulley boring bar and fluted reamer, drilling jig, cutting off wire, pointing wire. Peter Chiampon. *1552
for rounding head of special screw. H. B. McCabe. *1275
for setting or extracting studs. *1740
for spacing bolt circles, A. *1116
for the drill press, A holder and combination. Tool Room. *883
for the hand lathe, A cutting off. Carroll Ashley. *951
for the lathe, A convenient boring. D. E. MacCarthy. *954
for truing a valve seat. Cheroot. *1085
for turning soft rubber. J. B. S. *1134
gage, Improved 29-degree screw thread. Brown & Sharpe Mfg. Co.'s. *500
grinder, Electrically driven water. Ransom Mfg. Co.'s. *1093
holder, A boring. M. W. Leech. *485
holder, A folding file and. George W. Bowers'. *917
holder for screw cutting, etc., An English. Francis W. Shaw. *1770
holder for the shaper. X. N. Tric. *1760
holder, The hang of the slotting. Frank Rattek. *1275
John Bertram. *1761
holder with set of tools; holder fitted with turret. O. K. Tool Holder Co.'s. *1738
holders for inserted tools, Sale of large. 1320
holder for lathe or planer; set of self-hardening tools. Joseph V. Woodworth. *959
Improved lathe. Armstrong Bros. Tool Co.'s. *967
kit of an English machinist. I. W. P. 800
—New setting instrument for planing keyways in shafting, testing twist drills, etc. Morris Chamberlain's. *998
post for heavy turning on chucking lathe, A. Wm. H. Brooks. *486
post for round steel of different sizes. F. H. Sovereign. *206
post for the pattern and machine shops. E. J. B. *1831
room cases for cutters, saws, etc. H. Goldsmith. *1397
room of William Sellers & Co. H. Goldsmith. 1114
room system of Binsse Machine Co. for drills, taps, etc. H. Goldsmith. 1261
room, Twenty-five years' progress of the. 1581
room window, A triangle alarm at the. F. W. Harris.
rooms needed for shop discipline. See "Shop, How to brace up a."
steel, The Shoeller-Express. 774
stock room of General Electric Co. 1256
Taper turning box. E. D. *1129
tests, German lathe. R. Grimshaw. 549
The flat drill as a turning. F. W. Shaw. *792
the rose reamer and the box tool, old fossils, The diamond-point lathe. Knocker. 344
W. H. M. "Minnesota." 807
Carroll Ashley. *1766

PAGE

Tool to hight with inside micrometer, Setting planer. D. E. MacCarthy. *1279
work, Supports for. F. *1407
Tools, Machine. See also "Machine tool," "Machine tools."
devices, etc., Some jobbing shop—Drilling holes in a helical casting; milling in the drill press; special chuck for brass rings; rounding the edges of brass disks; a handle for a templet; fixture for milling; keyseating in the power press. Joseph V. Woodworth. *758
and holders used on old lathe, Special; spherical boring tool. J. Menegus. *1138
and shop practice, Twenty-five years' progress in—Subdivision of work; the draftsman and the blueprint; tool room; stock room; materials; twist drill; tool grinder; improvements of standard tools; milling machine; turret lathe; grinding machine; combination tools for heavy work and assembling; toothed-gear practice; pneumatic tools; electricity; press work; special automatic tools; lubricating and anti-friction devices; general shop conditions; conclusion. 1581
and thin chips, Sharp. J. C. Green. 495
as impedimenta in shops. Tecumseh Swift. 1166
at the Nordberg Mfg. Co.'s plant, Swiveled supports for motors on. *933
Ball turning. Theodore. *737
Drawing the temper of. E. R. Markham. 1163
A. M. Gordon. *1455
for bending a blank. C. O. D. *734
for cutting square threads of steep pitch, etc. See "Screws."
for forming chamber in shells, etc., on Alfred Herbert Ltd.'s magazine screw machine. *1199
for machining a cam, A set of. Joseph V. Woodworth. *412
for making a brass ball. H. B. McCabe. *1133
for making a drop-forge die. Theodore. *212
for making a round piece with four tapped holes on turret lathe. E. E. Winship. *336
for molders, Economy of having enough. R. C. Cunningham. 1230
for shaping circular forming tools. H. L. G. *200
For standard tapers for the tangs of woodworkers'. Woodworker. 957
John E. Sweet. 1128
for the bench lathe, etc., Holders for small. M. W. Leech. *352
Henry Boettcher. *627
for the erecting shop—pins for gaging alinement with a cylinder, pointer with screw, etc. I. W. Payler. *959
for the patternmaker's lathe. John M. Richardson. *466
for trimming electric lamp outside socket shells. Barney. *1122
Grinding circular planer. Carroll Ashley. *419
Handy small—Vise block; expanding tap; beam dividers; depth gage; tap wrench. M. W. Leech. *205
Importance of machinists having good. W. Osborne. 1476
Names of. W. Osborne. 1539
Names of—in England. Francis W. Shaw. 1862
noted by a wandering mechanic, Various. See "Mechanic."
of Garvin Machine Co.'s 2x12-inch screw machine, Turret and. *1855
on good machines, Faulty. Roger Haines. 25
W. R. G. 193
or tool holders for internal work on the shaper and planer. Isaac Morgan. *25, 491
W. H. B. *193
B. A. Roberts. *203
B. D. Tillinghast. *209
S. B. M. *488
E. R. Markham. *492
H. E. B. *494
—Pattern shop wrinkles. See "Pattern."
Private stocks of. X. 34
I. W. Payler. 339
Removing rust from. S. and S. 959
Selecting patternmakers'. Mech. 1235
Slotting, "putting on" and "hog nose" planer; support for planer work; depth gage. Carroll Ashley. *1766

PAGE

Tools, The action of cutting. William Taylor. 1705
The apprentice and his. Mr. Martin. 1411
Two types of needle box. W. E. Callaghan. *487
Toolmaker's scratch block, A. Morris W. Leech. *20
Toolmakers' lathe, A new 10-inch. Pratt & Whitney Co.'s. *833
Torpedo boats, The requirements of. Lieut. Gustav Kaemmerling. 1350
gun, The Gathmann. See "Gun."
Tracer card file, etc., for tap orders. C. H. Besly & Co.'s. *1112
Tracing cloth for ink, Preparing. A Reader. 1056
Copying drawings by. Cherry Red. 1315
W. H. S. *1457
pencil, A vertical. M. E. D. *1281
pulley arms—"X-ray" pattern work. Billy Murphy. 497
G. Schneider. 961
Tracings, Needle points for holding. Frank B. Kleinhans. *1655
Track wheels, Crane. A. D. Williams. *1308
Trade, A feature of the world's iron. 245
for my boy? Which is the best. D. E. M. 1405
W. Osborne. 1740
in Eastern Asia, Interview with F. W. Horne on. 886
in general manufactured goods, Increase of foreign. 1319
in Great Britain, The American tool. Charles Churchill. *1621
matters in Morocco, Gibraltar, Spain, Portugal, France, Scandinavia, Germany, Austria-Hungary, Italy, etc. Henry L. Geissel. 903, 1019, 1059, 1349, 1493, 1836
Brown & Sharpe Mfg. Co. 1427
methods, Our foreign. 1164
notes, Foreign. F. C. C. 231, 371, 556, 694, 1077, 1191, 1235
notes, Foreign—Enterprise in Luxembourg shops; continental freights; international steel trade; notes from China, Formosa and Egypt. F. C. C. 1789
notes, Foreign—German machinery trade figures; What is a machine tool? Prizes offered; Spain; Japan; Peru; Standardization in England. 1853
Opinions of machinery manufacturers on reciprocity and foreign. 242, 246, 274, 307, 383, 388, 389, 564
schools. See "School," "Schools."
—Tariff for South Africa. 964
The importance of quick delivery in foreign. F. C. C. 1077
with Russia, Our machinery. 38
Trades, Education for the machine. Samuel M. Vauclain. 269
Train system for rapid transit, A. John E. Sweet. 1167
James B. Stanwood. 1313
Trammel, Elliptical. John M. Richardson. *1249
Tramp draftsmen. F. W. Harris. 164
Kabe. 1523
L. O. Danse. 1840
machinist, The. Ver. I. Nier. 9
J. G. 209
I. W. Payler. 339
S. P. Y. 1831
Transferring chucked work to different machines, For. M. W. Leech. *27
holes where work is overhanging. A. H. Cleaves. *8
Transformer, Pulley—Moore & White's variable speed mechanism. Walter Ferris. *944
Transmission, Power and Power. By E. W. Kerr. †452
Traveling man, Some observations of a—Gas engines. T. A. B. 21
Mechanic, Notes of a. See "Mechanic."
mechanic, The. Ver. I. Nier. 9
J. G. 209
I. W. Payler. 339
Treese, Death of Samuel K. 598
Trevithick, an unappreciated inventor, Robert. W. H. Booth. 872
Triangle appliance for drawing screw threads and section lining. Edward A. Osse. *1277
for an alarm at the tool room window, A. F. W. Harris. 765
Marking constants on celluloid. F. W. Harris. 88
Triangles, Warped celluloid. Ernest J. Lees. 1830
Triangular center hole, A. "Dibs." 353
John Graves. 417
Francis W. Shaw. 1125
Trick, A press work. A. P. Press. *207
A workman's. Lathe Hand. *490
Trimmer, A new. Diamond Clamp & Flask Co.'s. *357
The pattern shop. Trimmer. 1273

PAGE

Trimming the edges of cups, caps, etc., Combined die for drawing and. Charles Fischer's. *390
Truck, A heavy auto-. 1238
Making the engine load herself on a. Joseph V. Woodworth. 336
Truing a bar. W. E. Hunter. *638
holes, Test indicator attachment for. J. F. B. *29
straight-edges. P. C. Ry. *345
the tail center of a milling machine. A. B. Christman. *351
the wheel, Grinder attachment for. George Gorton Machine Co.'s. 41
Trunk corner fasteners, Punches and dies for box and. See "Boxes."
Trust lesson, The rubber. 166
The harvesting machine. 1204
Trusts in Australia, Tariff and. 966
Russia proposes conference on. 1061
Tube expander, A plastic pressure. Newall Engineering Co.'s. *298
expanding and flanging machine, The Lovekin. Keystone Machine Tool Works'. *113
under twisting strain, Action of a split. *1041
Tubes with feed motion for the blanks, Fixture for forming taper. Moses G. Wilder. *90
Tucking, Shaping the flask to avoid. Geo. Haley, Jr. *1404
Tunnel accident and the coroner's verdict, The Fourth avenue. 166, 306, 356
The New York Rapid Transit. †1174
Turbine, Queer information about the steam. 946
Test of a 300 horse-power De Laval steam. 1381
The steam. 564
Fred R. Low. *1593
Turbines, Hydraulic Motors and. By G. R. Bodmer. †775
Marine. Rear Admiral George M. Melville. *1574
Questions about water. (8) *743
Steam. Tecumseh Swift. 497
Turning. See also "Lathe," "Lathes."
a brass bushing. Chucks for boring, facing and. Roger Haines. *350
A Manual of Wood. By C. R. Richards. †1662
and grinding a large roll with a small lathe. Chas. A. Trask. *704
balls in the screw machine. Theodore. *737
Crankshaft. Joseph Menegus. *1274
device, Special oscillating. Robt. J. Smith. *797
B. J. Coates. 962
granite columns—Carrying the weight in the lathe. Cornell Ridderhof. *14
mill, Hydraulically adjusting a dynamo housing on an inside. *443
soft rubber. J. B. S. *1134
Swash. Curious. *1168
Gestric Land. *1343
tool, The flat drill as a. F. W. Shaw. *792
Turret and tools of Garvin Machine Co.'s 2x12-inch screw machine. *1855
for lathe work at Westinghouse shops, Special. H. Goldsmith. *938
lathe, A die holder for the. Adam Herkner. *342
lathe, A multiple tool block for the. Roger Haines. *951
lathe arranged for turning and facing change gear blanks. H. Goldsmith. *1747
lathe, Fixtures for making round piece with four tapped holes on. E. E. Winship. *336
lathe, Pulley boring bar and fluted reamer for. Peter Chiampon. *1552
lathe, Ring. Walter H. Foster's. *722
lathe, Rod chuck for. C. H. Besly & Co.'s. *1112
on an old lathe, A; turning eccentrics. B. W. T. *1410
Tool holder fitted with. O. K. Tool Holder Co.'s. *1739
machine, A novel boring rig for the. Roger Haines. *672
machine, About an "automatic" chuck for a. 1029
machines and screw machines, Twenty-five years' progress in. Brown & Sharpe Mfg. Co.'s; Jones & Lamson Machine Co.'s; Pratt & Whitney Co.'s. *1616
Krupp ball bearings for. *1620
Twisting corkscrews, A machine for. Joseph V. Woodworth. *1362
tests of iron and steel under different degrees of heat. J. J. Wilmore. *1849
Typesetting machines, German patent decision as to. Simon W. Hanauer. 563
Typewriter, Facts regarding the early history of the. 1449

U

PAGE

Unemployment, Municipal insurance against. 1365
Union men object to some holidays, Some. 454, 566
Pacific machinists, Strike of. 966
Unions, etc., Trade—The relative position of employer and employed. Edward B. Gilmour. 725
United States in the production and utilization of electric power, The position of the. Sidney Graves Coon. *552
States Steel Corporation and the Allis-Chalmers Co., The. 167
States Steel Corporation, Carrying the details of the—Mr. Schwab's breakdown. 1204
States Steel Corporation gives stock to employees. Pittsburg. 305
States Steel Corporation, The policy of the. 214
States Steel Corporation's prices abroad, The. 440
States—The land of unbounded possibilities. Hon Ludwig Max Goldberger. 1772
Universal dividing head universal, Scheme for making the. W. A. Warman. *698
joint, A simple. Cosmopolitan. *1722
Unwarranted conclusion, An—Production and prosperity. 1575
Useless work, Avoiding. 1571

V

V's for machine tools, Inserted. J. J. Osgood's. *1062
Vacation, Navy yard employees protest against longer. 454, 566
Valentine of the Titusville Iron Co. to its employees. 356
Valve, A large differential action reducing. Nordberg Mfg. Co.'s. *1161
and its Functions, The Slide. By J. Begtrup. †1559
arrangement of respiration calorimeter. Frederick Hart's. *1302
gear, The Corliss. J. Begtrup. *127
gears of King-Riedler air compressor. *1478, *1480
Machining an air compressor. C. O. D. *1266
Mistakes in making an engine—Some little things that count. R. H. Jackson. 946
motion of an early steam pump, Simple. W. Osborne. 376
movements of Rhodes' high speed engine, Diagram of. *662
Repairing an engine. W. Osborne. 663
seats and guides in line, Boring. Cheroot. *1085
slotting jig. A. Roger Haines. *1273
The Duro blowoff. Lunkenheimer Co.'s. *40
to a pump, Job wanted after connecting a. Mike Lunkhed. 1122
Trouble with a—Kicks and kickers. W. Osborne. *1646
wheel pattern, Making a. Francis W. Shaw. *26
with glass, A boy's grinding in a pump. W. Osborne. 1588
Valves, Porting slide. Frank Rattek. *1768
Van Tine, Death of George W. 1838
Variable speed. See "Speed."
Varnish pot for pattern shops, A new. Diamond Clamp & Flask Co.'s. *1773
Vaudeville show in the shop, Apprentice informs about a. H. B. 1056
Dutch. 1315
H. B. 1549
Vehicles, Self-Propelled. By J. E. Homans. †774
Velocity Diagrams. By C. W. MacCord. †168
Velocities, A lesson in virtual—An elevator accident. 997
John E. Sweet. 1167 1174
Ventilated pulleys. W. *909
Ventilating Buildings Heating and. By R. C. Carpenter. †1662
Ventilation, Steam Heating and. By W. S. Monroe. †1031
Vernier caliper as a hight gage, A. San Francisco. *765
Turning a. P. A. G. *416
Verniers, The reading of. *474
Vibrating levers, Laying out. E. O. W. *995
Vise and jig, Drill press. Graham Mfg. Co.'s. *41
block, A. M. W. Leech. *205
for milling machines, planers, shapers and drill presses, A new. Hill Tool Co.'s. *1030
jaw, Locating stop pins in milling machine. W. E. Callaghan. *950
jaws, Aluminum. Z. Y. X. 35
jaws, Jig for drilling milling machine. W. E. Callaghan. *496
jaws, Molds for babbitt hammers and. H. T. G. *478
on pattern shop bench, Position of. Suggestions. 1267

PAGE

Vise or piece of work in milling machine, A micrometer clamp for squaring or alining a. F. W. Unger. *952
Patternmaker's. J. L. Gard's. *1869
Universal bench. Jacobson Machine Mfg. Co.'s. *847
used at Westinghouse works, Milling machine and drill press; Vise for light milling. H. Goldsmith. *938
work of a machinist with only one hand. C. W. Putnam. *465
Visitors at the Krupp works. 855, 964
How to show a shop to. B. W. T. 706
in the foundry, Effect of. 1461
etc., in England, Showing shops to. James Vose. 1090
Y. Z. 1269
Volcanic suggestion from the foundry, A. Tecumseh Swift. 912
Volume, Formula for—Graphic integration. Anonymous. *1456
Edgar H. Berry. *1679

W

Wabbling saw, Action of a. 790
Wage affairs in United States Steel Corporation. 677
Wages. See also "Premium," "Bonus," "Piece," "Labor," "Strikes," etc.
A boy's. 521
advanced by Chicago, Milwaukee & St. Paul Ry. system, Machinists'. 1351
advanced by Jones & Laughlins and United States Steel Corporation. 966
advanced by railroads. 1692
Agitation for higher; Effect of combination upon wages. 533
Allis-Chalmers Co.'s shorter hours and increased. 423
although stockholders, Workmen of insolvent company entitled to. 886
at the Joliet steel mills, Advance in. 917
calculator, The New Idea. Carlton Mfg. Co.'s. *1646
—Compensation of skilled labor. John Richards. 658, 676
—Gift propositions for paying workmen. Frank Richards. 1798
—Heading of pay sheet. Wilfred Bancroft. *1050
Insufficient—The maintenance of industrial efficiency. 1140
of apprentices. J. L. Gard. 16
on the Siberian Railway. 215
The cost of living and. 167
A Veteran Observer. 236
etc.—The relative position of employer and employed. Edward B. Gilmour. 725
Wagon forward while on it, Pushing a. Y. Z. 1269
Waiting. (Poetry) 1639
Wandering mechanic, etc. See "Mechanic," "Machinist," "Draftsman."
Want, The transformation of. Tecumseh Swift. 769
Warped celluloid triangles. Ernest J. Lees. 1830
Washers for embossing rolls, A special tool for cutting out large fiber. Joseph V. Woodworth. *1720
Hydraulically operated punch for cutting large. C. Patterson. *1024
or micrometrically adjustable collars for milling machine arbors, Paper. Mac. *31
C. W. Coburn. *625
without waste of material, Making. Howard A. Coombs. *182
Washing overalls, Machine for. F. W. Harris. *1129
Waste of material, Making washers without. Howard A. Coombs. *182
Wasted. See also "Spoiled."
time, Pay for. John Scott. 1344
Watch, A pendulum. W. A. Warman. 191
Compressed air for cleaning a. D. E. M. 808
escape wheel cutting engine, A. A. H. Cleaves. *331
Story about accuracy of a. W. Osborne. 901
trade in Austria, The clock and. 1174
Water annealing. W. Osborne. 261
Cooling drinking. Frank Greiner. 1279
dynamometer, The Froude. *1220
Ejectors worked by. Fred. H. Colvin. 1343
for workmen, Drinking. 646
jacket for gas and gasoline engines, Supplying the. M. N. O. 343
James Thomson's discoveries on the flow of. John Perry. 1512
meters in Memphis. 1092
power, An analysis of the commercial value of. A. F. Nagle. 1799
supply and drain for the grindstone. A. K. S. *736

PAGE

Water turbines, Questions about. (8) *743
wheel, Accomplishment of a Pelton. 1091
wheel described by a daily paper, A. 1206
Waterproofing blueprints. 299, 1589
Watervliet, Cost of making ordnance at. 728
Watt and the tea kettle dream. James. 416
Wattmeter armature guard ring cup, Combined drawing and forming die for. J. W. White. *878
Wax for cutting threads on copper, Bees. John Koehler. 192
George Nelson. 1271
for lathe work, Wooden chucks and face plates and. P. A. G. *415
for pattern repairs, Using plaster of Paris instead of. G. P. Campbell. 477
Weatherby, Death of Joseph P. 1383
Webb built 4,000 locomotives and retires, F. W. 1856
Weighing and counting machine. Joseph S. Cortelyou's. *501
Weight of castings, Calculating the. C. M. Schwerin. *1538
Weights and measures, A rational solution of the problem of. Sidney A. Reeve. 1795
Welding aluminum. 1557
copper. 1227
F. G. Emmelmann. 1378
Engineer. 1378
Practical copper. 1509
steel, A new compound for. Charles Pangborn's. 911
with acetylene and ether. 1869
Wells, Some pictures of oil. W. Osborne. *579
Werkzeugmaschinen, Die. By Hermann Fischer. †70
Westinghouse Air Brake Co. offers prizes for beautifying workmen's homes. 1019
Electric & Mfg. Co., Shop practice of the. H. Goldsmith. *938
works, Record bricklaying by an American contractor at the British. 885
Wheel chuck used at Westinghouse works, Hand. H. Goldsmith. *939
constructions, Faulty and correct —The proposed standard roller chain. J. O. Nixon. *13
C. E. Whitney. *133
cutting engine, An escape. A. H. Cleaves. *331
guard, Machine molding of a. George Buchanan. *731
pattern, Making a valve. Francis W. Shaw. *26
Wheels, Crane track. A. D. Williams. *1308
Fastening keys in track. R. A. L. *481
Mining Machinist. *800
Fly. See "Flywheel," "Flywheels."
Order to ship keyways after car. S. B. McQuade. 194
Paper and iron friction. See "Gearing."
with special Bickford radial drill, Making segmental rope driving. *1153
Wheelock, Death of Jerome. 357
Will of Jerome. 454
Whistle blow, When I hear the. (Poetry.) Woodworth. 1580

PAGE

White, Death of Robert. 1238
Whitworth's and other standardization in Great Britain. 1082
Willans & Robinson, Semi-annual report of. 1494
William affiliates with merchants and manufacturers, Emperor. 645
Winch with rope drive for scraping lathe and planer parts. H. Goldsmith. *1115
Wind on a crane, Effect of. 1093
Planing out of—"Winding strips" unnecessary. Old Bob. 954
W. E. D. 1751
Winding jig, A magnet. Milwaukee. *1716
springs. See "Spring," "Springs."
Windmill on locomotive for electric lighting. 624
Window glass making machine, A. 917
Windows, "Glasbrite" for cleaning. 917
Shades for shop. T. A. B. 481
Wing, Death of Charles Howell. 1175
Winke fur Erfinder. By Robert Grimshaw. †39
Winter, Out of door jobs in. W. Osborne. 1020
Wire bending machine, Automatic. C. D. King. *1088
Wire edgewise, Winding flat spring. W. A. Warman. *348
Fixture for cutting off. Ver. I. Nier. *1250
spring mandrel, A long. L. O. Danse. 1523
springs, Fixture for cutting off. A. H. *733
Tapping copper. I. W. Payler. 339
Tools for cutting of and pointing. Peter Chlampon. *1552
Wiring, Electric crane. See "Crane."
job on the planer, A. Carroll Ashley. *878
system of the Nordberg Mfg. Co.'s plant, Electric. *929
Withdrawing parts of patterns, Mechanical devices for. S. H. Stupakoff. *378
Wood, Death of B. Frank. 566
pulp, Textile fabrics made of. 525
trimmer, A new. Diamond Clamp & Flask Co.'s. *357
Turning, A Manual of. By C. R. Richards. †1662
Wooden chucks and face plates and wax for lathe work. P. A. G. *415
Worcester machinists' strike, The. See "Strikes."
Work, Avoiding useless. 1571
benches. See "Bench," "Benches."
day. See "Day."
Good enough. See "Good."
Hand and brain. See "Brain."
hard. Prof. F. B. Crocker. 742
The search for. W. 1262
Workman at Homestead steel works, Identifying a dead. 563
Workman's trick, A. Lathe Hand. *490
Workmen, Comparison of British and American. William H. Booth. *1580
Drinking water for. 646
Homes of. See "Homes."
J. A. Fay & Egan and Lane & Bodley Companies planning building for. 1238

PAGE

Workmen junior partners, Making strenuous. Pittsburg. 305
of insolvent company entitled to wages although stockholders. 886
Recklessness of cartridge factory. S. F. Arthur. 1722
The alleged corruption of British —The maintenance of industrial efficiency. 1140
The reliability of. W. D. Taylor. 326, 354
Workmen's critics; living for efficiency. Wm. H. Brooks. 640
Tecumseh Swift. *641
Worm and spiral gearing. See also "Gear," "Gears," "Gearing."
or screw patterns, Making. Old Bob. *31
Worms, A rig for cutting steep pitch. Wm. H. Brooks. *273
in a flour mill or machine shop, Milling. 1852
Molding spiral gears and. Francis W. Shaw. *913
on the planer, Attachment for milling. Adams Co.'s. *1546
The chaser for cutting. T. A. B. *956
Wrench, A bolt used by an apprentice for a monkey. B. M. *798
Capt. T. G. Tulloch. 1057
and drill, Universal ratchet. Universal Mfg. Co.'s. *454
Tap. M. W. Leech. *205
for lathe dogs. D. E. F. *206
Pipe. W. H. Ermentrout's. *1237
story, A monkey. 788
Strengthening the chuck. B. *483
Tap. Robertson Mfg. Co.'s. *742
The Eagle pipe. Frank Mossberg Co.'s. *216
with too much force, Using the. W. Osborne. 900
Wrenches, Too many machine. S. P. Y. 1422
Charles P. Thiel. *1763
Wrigley, Death of Thomas. 136
Write on glass, To. 497, 757
Writes, How Henry Watterson. 580
Written orders. See "Orders."

X

"X-Ray" pattern work. Billy Murphy. 497
G. Schneider. 961

Y

Y. M. C. A., Growth of the. 165
West Side Branch of the. 1462
Yacht, the speed of a. 1316
Yard, The English and American standard. 1558, 1692
Yellows, Reds vs. 1316
Yoke, Milling jig for brush-holder. C. Allper. *348
or cradle for drilling, Laying out a. C. W. Putnam. *802

Z

Zug, Death of Christopher. 135

Bound Volumes
of The

American Machinist

for 1902,

containing 1,880 pages, can be had for $5.00, f. o. b., New York. Book is too heavy for mail; sent by express.

Bound Volumes
of

Power

for 1902,

containing 542 pages, can be had for $3.00, you pay the express.

These volumes are in themselves libraries of the mechanical progress of the year and contain articles and illustrations of great worth and merit that cannot be purchased elsewhere.
Only one hundred copies of each are for sale.